GOING NATIONAL WHILE STAYING SOUTHERN: STOCK CAR RACING IN AMERICA, 1949-1979

A Dissertation
Presented to
The Academic Faculty

By

Ben A. Shackleford

In Partial Fulfillment
Of the Requirements for the Degree
Doctor of Philosophy in the History and Sociology of Science and Technology

Georgia Institute of Technology

December, 2004

GOING NATIONAL WHILE STAYING SOUTHERN:
STOCK CAR RACING IN AMERICA, 1949-1979

Approved By

Dr. Steven Usselman

Dr. Gus Giebelhause

Dr. Doug Flamming

Dr. Philip Scranton

Dr. William Winders

Date Approved
22 July 2004

ACKNOWLEDGEMENTS

A work of this scope inevitably draws upon resources outside the individual author. Luckily I have been able to draw upon many interested and willing librarians and archivists while conducting research for this project. I would like to thank Rebecca Lynch, Roger White, Maggie Dennis, Joyce Bedi, at the Smithsonian Institution. Buz McKim at the ISC archives, Betty Carlan at the International Motorsports Hall of Fame, the Staff of the National Automotive History Collection at the Detroit Public Library, and Bonnie Walworth at the Ford Motor Company archives in Dearborn, Michigan. I would also like to thank the Lemelson Center, the Atlanta History Center, the Riddle Foundation and the School of History, Technology and Society at Georgia Tech whose generosity permitted me to work in such a variety of collections.

Studying the history of technology often requires technical expertise beyond that available in the classroom. During my experience as a racing mechanic and fabricator I was fortunate to have many very capable teachers who willingly shared their expertise. Among these are my Robert Wagner, Smokey Yunick, Chris Brown, Amos Johnson, Thomas Blam and Franz Blam. Any technical proficiency demonstrated in these pages results solely from contact with these fine teachers, any errors or omissions are my own.

Beyond the practicalities of research materials and technical experience, this project required the assistance and encouragement of many gifted scholars. I owe Steve Usselman, Phil Scranton, Gus Giebelhaus, Doug Flamming, Steve Vallas, Pete Daniel, Bob Post and Dave Morton a tremendous debt for their intellectual guidance and support.

Finally, I would like to thank my partner Robin, and my family for their continued support of my academic career.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

SUMMARY

During the second half of the 20th century the Stock Car Racing enjoyed substantial growth and development. For the National Association for Stock Car Automobile Racing (NASCAR) control over the technology of competition and the conduct of race events was crucial to building respectability and profitability as an entertainment phenomenon between 1949 and 1979. The power to specify technology offered NASCAR leverage over the actions of racers who, despite their status as independent contractors, were fiercely loyal competitors. Control over the technology of competition also helped maintain 'strictly stock' perceptions of NASCAR racing that made corporate sponsorship attractive to automakers and held the interest of the general public. After initial forays across the nation, NASCAR chose advantageous concentration on the southeastern markets where racing spectacle found the most enthusiastic and devoted audience. This thesis is an account of the process of systematization that brought the grass-roots phenomenon of production-based to a region and an nation, and how NASCAR relied on a stock-appearing racecar as a device to simultaneously control participants, lure corporate promotional dollars, and attract fans.

CHAPTER 1

INTRODUCTION

The American automobile was born of the minds and methods of pragmatic men. Lacking a body of scientific theory or access to precision measurement devices, motoring pioneers often turned to endurance runs and speed contests to test their machinery. Such empiricism ultimately refined the car through the initial period of novelty status into a device of some reliability and utility. As a consequence, early automobile racing was as much about finding the practical limits of automobile use as about posting impressive speeds. In the first race staged in the United States, in 1895, only two cars finished out of a field of 83 entrants.[1] In the face of such dramatic technical challenges, how long and how fast cars could be made to operate became objectives with tremendous cultural gravity. Early cars were as much a novelty as a practical technology, a plaything for wealthy patron or curious mechanics, enthusiast tinkers engaged in empirically refining the car.

As the designs and business practices of the American automotive industry became more refined, racing in either top speed events or contests staged on horse tracks gained popularity as a means not only of testing, but also of promoting the virtues of a specific model. These contests soon attracted attention on the basis of their entertainment value as much as test runs, product demonstrations, or promotional opportunities. After all, how often could the public see inventors working in the laboratory? Though by the close of the 1920s the demands of the track and the exigencies of production had all but completely severed similarities between racecar and production car, the idea that racing could prove something about production cars would persist throughout the 20th century. Production-based racing, as it emerged after the

[1] James J. Flink, *The Automobile Age*, (Cambridge: MIT Press, 1993), p.23

Second World War, would depend heavily upon the idea of automobile racing as a laboratory for automakers to suggest practical benefits of racing that might feed directly into consumer products. This suggestion typically was paired with assertions about the entertainment value of racing and was most frequently made in media accessible to the general public.[2]

Racing vehicles from the "stock" of an automobile manufacturer were, from the very first days of the car in America, part of the automotive landscape. Auto racing was a means of attracting publicity to motoring, advertising the durability of a model or manufacturer, or simply enjoying a technical challenge accompanying the dawn of the motor age. Promoters continually staged races in a variety of formats throughout the first decades of the 20th century.[3] Sportsmen, manufacturers and promoters displayed automobiles for recreation, promotion or profit and they attracted audiences because of popular fascination with the sophisticated equipment and because of the entertaining aspects of racing competition. Speed record runs, hill climbs, cross-country endurance runs, 24hour races, European-style road racing, races on half-mile dirt "bullrings," and races on massive, high-banked oval wooden tracks celebrated the power of automobiles. Claims that building a better racecar might help develop technical knowledge applicable to building regular cars for the public often acccompanied auto racing during these early decades. This claim, and the publicity accompanying motor sport in an era of explosive popularity for the car, helped automakers justify participation and better advertise success in racing.

[2] There was not much discussion of these so-called practical applications of racing in publications like the National Speed Sport News or the NASCAR News that catered primarily to racers.

[3] Russ Catlin, "History of the AAA", *Speed Age*, July 1954, p.39, Levine

Journalists described competition with production cars as “stock car racing” as early as 1909.[4] Promoters suggested that his sort of racing offered a public demonstration of the relative merits of vehicles of differing makes.[5] The introduction of standardization and huge quantities of such cars through the techniques of mass production changed the definition of a “stock car.” In a time when automakers produced cars on a one-off basis and racecar design was in its infancy, ambitious car builders often blurred the distinction between a stock vehicle and a race vehicle. After the introduction of mass-production, the term came to mean vehicles produced on assembly lines using mass-production techniques.

Though perhaps subtle, this distinction suggested that the availability provided by mass production made “stock” racecar performance available to the public when often it did not. Much of the history of stock car racing in America is about building a racecar while maintaining visual association with mass produced cars. From the racer’s perspective, the cost difference between mass-produced stock cars and products from the craft-built automakers’ stock mattered. “Stock” racecars built after the adoption of mass production, if not actually vehicles built on an assembly line, were composed of production components. At minimal cost, talented mechanics cobbled together “stockers” for less expense than highly specialized racecars used in other types of competition.

The tension between production-based and purpose-built vehicles characterized relations in the racing world long after the craft-built Deusenbergs, Packards, Pierce-Arrows and Cords had vanished from showrooms. For most of the 20th century the crowning event of the purpose-built racing world (indeed of all of the automobile racing world) was the Indianapolis 500. From that event, and the racing series that fed talent

---

[4] “Stock Car Races,” *Motor*, October 1909, p.43
[5] Levine, Leo, *Ford: The Dust and Glory*, (New York: Macmillan, 1968), p.27

into the highest echelon of circle track racing in the U.S., disdain was focused on production-based racing. Many thought that proper racing involved sportsmen or their hired drivers on oval racetracks in custom-built speedway specials. This sort of racing traced its roots to the earliest era of motor sport, and remained bound up in the elitist connotations that accompanied the first automobiles.

Mass production, a system devised in concert with demand for the automobile, altered the way Americans organized work and consumption. The Ford Model T established the automobile as a simple transportation appliance by the close of the 1920s. After production capacity and product longevity surpassed the demands of the market, institutions depending on mass production created reasons for consumption that were unrelated to utility. In order to sell more cars, more romantic notions of empowerment, status and identity augmented perceptions of the car as a modern, labor saving invention of tremendous practical capability. By the 1930s, increasing emphasis on sales romanticized the automobile as bestowing benefits far beyond the practical applications of a transportation device. Advertising celebrated cars as givers of personal freedom, as mobile status symbols, and as the prime object offering identity to its owner. The assertion that a car was more than just a means of transportation transformed the industry. As first successfully suggested in the marketing efforts of Billy Durant's General Motors, color, not just price and a reputation for Spartan reliability, could sell cars.[6] Eventually, images of style, speed, performance, and luxury suggested that the automobile was far too important a device to be judged by how efficiently it might carry passengers or a reasonable payload. This transformation of the industry mainly involved an increased emphasis on sales, promotion and marketing and was enacted fully during resumed production and prosperity after the Second World War.

[6] Flink, p.230. John B. Rae, *The American Automobile: A Brief History*, (Chicago: University of Chicago Press, 1965), p.98-99

The development of auto racing relied heavily on exploiting the relationship between the practical use of the automobile and the romance of automobility's more symbolic dimensions. The racetrack offered a chance to show how stock cars could perform and suggest that the status won by a racer could be transferred to consumers. Automakers used racing to suggest and demonstrate a set of practical virtues for their products. Claims of stamina, strength, and durability flowed naturally from racing contests between stock cars. Paramount of these virtues was speed and the horsepower required to produce speed. In Cold War America, consumers readily adopted the notion that owning more power than you might need. Yet the speed and spectacle of stock car stock car racing offered more seductive inducements targeting consumers. Through vicarious association, consumers could experience the illicit thrill of high speed racing.

Despite a fertile environment for selling automotive speed and spectacle, racers and promoters struggled to unify and spread stock car racing during the 1950s. The animosity between purpose-built racing and production-based racing heightened when the latter began to threaten the popularity and profits of the former. Though less sophisticated than purpose-built racecars, the public identified more easily with the "stockers" on the racetrack. Racing series using production-based cars ultimately enjoyed an advantage because of the material plenty resulting from mass production. With plentiful and economical components, stock car racers more easily built racecars. A steady supply of production-based racecars translated into more racers and more race events.

Because of the long shadow cast over the racing world by the "Indy 500," and continuity of regulation offered by the Contest Board of the American Automobile Association (AAA), racing with purpose-built cars dominated the American scene for the first six decades of the century. Automotive writer Ray Kuns described the dominance of

purpose-built racing in his 1947 book "There are three general classes of racing cars in use in America," Kuns suggested.

The largest of these is Championship Speedway car as typified by the Indianapolis cars where the wheelbase must be 99 inches or more. The second class in size is the dirt track race … where the wheelbase is 91 inches. The third class is the Midget which, as a rule, has a wheelbase of around 70 inches.[7]

Open wheel, purpose-built cars comprised what Kuns represented as the three forms of American motor sport. Such open-wheeled racing series ultimately fed talent into the annual 500-mile championship race in Indianapolis.

Despite the dominance of purpose-built racing before the Second World War, racers using modified production automobiles thrived on the margins. Small tracks and amateur enthusiasts brought racing to the masses through contests between modified production cars. Protean contests used modified production cars in racing competition as early as the 1920s. During the mid 1930s enthusiasm and mass production coalesced into a consistent form of racing that came to be known as "Modified" racing.[8] Contests put organized by the RPM car club of San Jose California in 1933 initiated use of the term "Modified."[9] By 1936, the term "modified" had spread across the nation. Existing racing activity using modified production cars were drawn into the spotlight as notoriety begun in California brought grass roots contest to the attention of the motoring press. By 1936, races using modified production cars were regularly sanctioned in places like Daytona Beach, Florida; Langhorne, Pennsylvania; and the Lakewood Fairgrounds in Atlanta, Georgia. The largest of these races typically presented contests between "Modifieds" as opening acts for events featuring purpose-built racecars in the AAA sanctioned Midget or Championship racing series.

---

[7] Ray Kuns, *Automobile Racing*, 6th edition, 1947, p.23
[8] Roger Huntington, "How Did We Get This Way?" *Speed Age*, June 1952, p.37
[9] "Modified Roadsters," *National Speed Sport News*, December 15, 1933, p.5

Before the emergence of a national “strictly stock” racing series threatened the dominance of purpose-built racing, dirt tracks across America hosted events featuring cars based on mass production components. With ancillary weight such as seats, body trim, and spare tire removed, and heavier springs, hubs and axles installed, these cars staged races in small racing series across the nation. These so-called “Modifieds” typically sported stripped-down production cars with reinforced suspensions and engines modified to produce maximum horsepower. Devotees of purpose-built racing most often derided these more-economical racecars as “jalopies.” Oval track racing using production-based equipment existed in the nether region of motor sport, utilizing small-time dirt tracks and local governing sanctions with widely varying rules, protocol and order enforced at a variety of racetracks. While purpose-built cars contested the most notable events in racing, races like the Indianapolis 500, the majority of motor sports contests were fought between production-based cars on the grass roots level.

If some racers and some racing organizations disagreed on the pedigree of a real racecar, neither established or aspiring racers contested the proper form of track. Since the earliest days of speed contests, Americans preferred racing on oval courses. Increases in the number of racing events staged after the initiation of quantity production, and increasing racing speeds during the 1910s, drove most automotive contests onto closed course tracks removed from the general public. Frequent use of horse racing tracks for motor racing events probably encouraged the normative oval closed-course configuration. Enthusiasts and promoters built many large, dirt ovals during the first decades of the 20th century. Elsewhere, investors utilized cheaper wood construction to construct purpose-built auto racing venues. Some of these high-banked ovals exceeded two miles in length. Large wooden tracks at Charlotte North Carolina; Omaha, Nebraska; Sheepshead Bay, New York; and Alatoona, Pennsylvania hosted races during the 1920s, the so called golden age of American Motor racing. Despite the

fantastic speeds possible on these giant, high-banked wooden ovals, they were not financially successful.[10] They required a lot of maintenance and frequently succumbed to rot and fire. These drawbacks and austerity brought about by the Great Depression meant that the bulk of motor sport before the Second World War occurred on oval dirt tracks. Indeed, except for the massive annual event at Indianapolis, dirt tracks hosted virtually all American racing before 1945.[11] Even after the Second World War, the majority of American racing events remained dirt track contests.

At the end of World War II, the American motor sport scene consisted primarily of oval track races between purpose-built cars. The three classes of purpose-built cars known as "Midget," "Sprint" and "Big" or "Championship" cars, represented the beginning, intermediate and expert levels of competition. The Contest Board of the American Automobile Association presided over these forms of racing, and indeed all other forms of motor sport. Composed of prominent businessmen appointed by the president of the AAA, the 15 member Contest Board governed the top tiers of racing in the United States. The AAA fostered continuance of the status quo and focused on purpose-built racing after becoming official U.S. representative of the Federacion Internacional d'Automobile (FIA) in 1927. "With the consolidation of its position as U.S. representative of the FIA," commented one reporter, "the Contest Board contented itself with representing only the top events in the nation."[12]

When NASCAR formed to sanction a national championship series for production-based racing in 1947, it faced the task of drawing into direct competition with the national championship series sponsored by the AAA. Despite the obstacles, NASCAR established production-based racing as a legitimate, nationally practiced form

---

[10] Roger Huntington, "How Did We Get This Way?" *Speed Age*, June 1952, p.38,54

[11] Though there were speed contests on dry lake beds, and road races between sports cars before the Second World War, the vast majority of races, as reported in the *National Speed Sport News* were conducted on oval tracks.

[12] Eugene Jaderquist, "Competition and the AAA," *Motor Trend*, July 1952, p.28

of motor sport over the next three decades. The existing modified ranks initially organized by NASCAR into a championship, and the strictly stock series that followed in 1949, successfully exploited shifting public expectations for the automobile. During the Cold War, Americans believed that they wanted more from their cars than simply transportation. In addition to style and luxury, Americans perceived horsepower as an automotive virtue.[13] thriving hot-rod speed culture begun by West Coast enthusiasts working in the margin between practical production-based use and high-performance cultivation of the automobile influenced general fascination with speed. Automakers, racers and NASCAR cultivated curiosity about hot rodding while advertising and promoting their own products.

Fortuitously timed to take advantage of widespread fascination with fast cars, the National Association for Stock Car Automobile Racing (NASCAR) initiated a new form of racing using late model, “strictly stock” cars that closely resembled the cars in dealer showroom. Rules mandating an unaltered, late model exterior. distinguished NASCAR from most earlier production-based racing. Regular-looking cars performing in fantastic spectacles, immediately linked strictly stock NASCAR Grand National racing to both the automakers and the public. The association possible between the spectator and the equipment on the track automatically infused this new form of production-based racing with elements of promotion and advertising. fast cars, driven by prominent racers naturally attracted a lot of attention. When campaigned on a national scale, the recognizable forms of strictly stock racecars combined familiarity with celebrity. This combination proved a potent advertising medium. In high-profile events utilizing purpose built racecars, spectators could only dream of owning a car like the one in victory circle. Easy association with the cars and competitors, not perpetuation of a technologically sophisticated racing series, was the key to NASCAR’s growth and prominence.

[13] Roger Huntington, ‘‘Detroit Corner,’’ *Speed Age*, May 1952, p.46

NASCAR stock car racing realized tremendous growth during the fifty years following its first stock car race in 1949. By the dawn of the 21st century, stock car racing had achieved national prominence as an entertainment and advertising phenomenon. As the second largest spectator sport in the United States, people, places, and merchandise related to stock car racing occupied at least a peripheral place in the consciousness of most Americans. Products and productions related to NASCAR filled store shelves, broadcast schedules, and recreational time available to fans nation wide. The ubiquity of racing celebrities promoting cereals, shoes, insurance, diet pills, candy, furniture rental, and soft drinks made the vigor and breadth of stock car racing's growth readily apparent. That racecar drivers have achieved celebrity suited to selling mainstream consumer goods suggests that stock car racing has also become a widely accepted form of entertainment.

During the second half of the 20th century NASCAR stock car racing became the most prominent form of motor sport. Following the traditional oval track format favored by American racers, it eclipsed more established forms of racing like "Sprint car" series and the "Championship" series culminating in the Indianapolis 500. By 2000 its drew more fans, conducted more races, and enjoyed more media coverage than any other type of racing. As a measure of its success, several superspeedway events each year register crowds that rival those at the famed Indy 500.

Beyond attracting huge live crowds, NASCAR experienced extensive broadcasting growth during the 1990s. Every one of the 36 events that compose a season in the highest level of NASCAR competition is broadcast live nationally. Indeed, the broadcasts are so lucrative and so expensive that in an unprecedented deal beginning in 2001, two major television networks, Fox and NBC, split seasonal broadcasting rights. Fox airs the first half of the season, while NBC broadcasts the second half. In addition to incredible amounts of exposure through these broadcasts,

television time devoted to NASCAR's lower echelons of "Busch Grand National" and "Craftsman Truck" racing series also garner substantial television coverage. With these event broadcasts, and lesser programming devoted to more peripheral matters like the technical issues of stock car racing or the lifestyles of NASCAR drivers, the popularity of stock car racing continues to grow.

The number of historical accounts describing the early years of NASCAR has increased along with the popularity stock car racing. While many of these accounts chronicle NASCAR events in great detail, few attempt to place the development of stock car racing in historical and technological context. Typically, the primary focus is on the details of race events and the personality of participants. This sort approach ignores the contributions of many participants while diminishing the importance of communities and technology. Most often the eventual success of NASCAR is attributed to the clever prescience of founder Bill France, and not the collaborative and occasionally contentious achievements of the stock car racing community as a whole. While often entertaining, such histories suffer from over-simplification and a sense of inevitability traceable to press releases designed to elevate stock car racing in the minds of fans and sponsors.

This thesis attempts to salvage a historical account of NASCAR's first thirty years from mythologies that have become accepted as fact. Conventional lore suggests that stock car racing was pioneered by Bill France, who later formed NASCAR to organize speed loving moonshiners into a racing series that quickly swept into celebrated prominence across the South. Such stories typically focus on the liquor-running roots of early racers, heroic accounts of specific races, and the benevolent dictatorship of Bill France. Though there is truth in this hagiographic, "moonshine and magnolia" telling of the early years of NASCAR, the narrative is more complex. Though it is true that Bill France's role was pivotal, that stock car racers were exceptional individuals, and that moonshiners were among the early racers, these elements comprise only part of

NASCAR's story. Stock car racing was organized within a national context of widespread fascination with the automobile, and became inextricably linked to social groups, regions, and technologies in flexible and interdependent ways. How the ambition and technologies of grass roots enthusiasts became transformed into a regularized system of entertainment and promotion within the American South better describes the story of NASCAR's crucial early years. This history of stock car racing evaluates issues such as the formation and structure of communities and business networks, negotiating controlled technological innovation, and the influence of regional and national cultural expectations. As a clear, contextual account of NASCAR's early development, sensitive to the broader influences and implications of stock car racing, this study will help disperse the existing myths that cloud understanding of an important technological and cultural phenomenon.

There can be little argument that the automobile possesses sufficient social and cultural gravity as a topic of analysis in western society. As Iain Carson commented, "By the middle of the 20th century, there were 2.6 billion people on earth; between them they had 50 million cars. Less than 50 years later, the totals have risen to 5.5 billion people and 500 million cars."[14] As the population doubled, the number of cars increased tenfold. Stock car racing occupied very visible terrain between the consumer and the producer during the sustained growth of automobility. If the sheer quantity of production and use are any indication of significance, during the second half of the 20th century, the automobile stands alone in importance. This work adds to our understanding of the relationship between consumer, producer and product promotion related to the automobile in American society.

As a sport of emerging significance during the 20th century, stock car racing combined cars with entertainment and advertising in novel ways. The notoriety of stock

[14]www.sjsu.edu/depts/PoliSci/faculty/haas/MTM201/Living_with_the_Car

car racing as an influential (if peripheral) influence on this relationship deserves continued scrutiny. As H.F. Moorhouse comments, “There can be few activities if any which have been so thoroughly studied as the production of cars . . . [yet] the myriad of ways the car has been used and exhibited, the social relations and institutions it has inspired in the rest of life, what it may have occasioned and connoted *outside* the factory gates, have been quite neglected.”[15] By addressing the history and growing influence of a group of enthusiasts group on the periphery of mainstream American society, this thesis explores the social relations and institutions influenced by and influencing American automobility.

Perhaps the immense size of American automobility after the Second World War has limited the number of historians willing to tackle auto racing as a subject. Sifting through vast amounts of information to distill accurate and relevant information, especially when the topic has stirred such enthusiasm, is a daunting task. This project represents a unique effort heavily dependent on internal sources. I have read hundreds of popular magazines, poured over NASCAR rule books from all of the first thirty years, sifted through cabinets of newspaper clippings, identified and analyzed rare racing artifacts and participated in interviews of dozens of NASCAR participants. Reaching historical clarity required sifting through NASCAR mythology to attempt an accurate, inclusive, and context-sensitive telling of the NASCAR’s early development.

The study also seeks to relate the historical narrative of the NASCAR phenomenon to broader themes within the history of technology. Much of the history of NASCAR demonstrates how the enthusiasm possessed by some became channeled into a profitable form of mass entertainment. On one level, then, this work expands upon the technological enthusiasm found among devotees of motor sport explored by

[15] H.F. Moorhouse, *Driving Ambitions*, (New York: Manchester University Press, 1991), p.5

historian Robert C. Post in his study of the drag racing culture.[16] As NASCAR imposed order, system, and control over technological enthusiasm, however, it represented a successful effort to combine and promote existing human and technical resources on a larger scale. Similar to the case studies investigated by Thomas P. Hughes, NASCAR represented an attempt by entrepreneurial figures to define, serve, and profit from national markets.[17] But the systemization of NASCAR racing differed in that the activities and outcomes that brought people and technologies together were far downstream from the point of production. Their experience with what David A. Hounshell has termed the "ethos of mass production" has come from the bottom up.[18] The technological landscape surrounding the history of NASCAR is thus cluttered with artifacts wrought by large corporations, and the expectations of racers and fans shaped by the larger image of the automobile in modern society.

Another useful tool of analysis employed in this study is the concept of "technological frame" as suggested by Weibe Bijker.[19] During the second half of the 20th century, various elements coalesced into the phenomenon of stock car racing. At the center of these actors was the NASCAR "formula stock" racecar. By casting the history of stock car racing as a series of elements bound by relationships within a technological frame, one can understand the social inputs that influenced technological change. Within this frame, we can also chart the influence of technologies on relevant social groups. As the "stock car" evolved as an odd conglomeration of production-based components refined by generations of users to produce an entertaining racing vehicle, it also

---

[16] Robert C. Post, *High Performance: The Culture and Technology of Drag Racing*, (Balitmore, MD: Johns Hopkins Press, 1994), p.298.
[17] Thomas P. Hughes, *American Genesis: A Century of Invention and Technolgical Enthusiasm,* (New York: Penguin Books, 1989), p.1.
[18] [18] David Hounshell, *From the American System to Mass production, 1800-1932,* Baltimore, MD: The Johns Hopkins University Press, 1984), p.303-330.
[19] Weibe Bijker, *The Social Construction of Technological Systems*, eds. Wiebe E Bijker, Thomas P. Hughes, and Trevor Pinch, (Cambridge: The MIT Press, 1987),

represented an example of the actions of communities of practitioners described by historian of technology, Edward W. Constant, II. The development of the NASCAR "formula stock" racecar closely resembles Constant's "model of technological knowledge [as] expressed in well-winnowed traditions of practice that are the possession of well-defined communities of technological practitioners."[20]

The story of early stock car racing is also contributes to the history of small businesses in the American South and the story of specialized producers everywhere. As Randall L. Patton suggests, there is much opportunity to describe the history of smaller firms whose profit strategies did not focus on economies of scale resulting from highly rationalized production.[21] Like other specialized producers, racers relied more heavily on what the economist Alfred Marshall described as "external economies."[22] The sorts of networks and institutions developed through shared experience, camaraderie, and the practical demands of racing in NASCAR were essential external contributions to economic viability. The racers who worked to produce a favorable impression for sponsors and an entertaining spectacle each week, formed elaborate and necessary networks that were integral to success that were typically centered around the equipment and process of racing.

The examination of technological communities suggested by Constant's work opens up another related and fruitful area of inquiry – the study of specialized networks of production. The sorts of networks explored by Patton, Philip Scranton, AnnaLee Saxenian, and others are fundamentally different than those built among NASCAR racers. In these studies of specialized networks, producers are categorized, compared

---

[20] Edward W. Constant II, "The Social Locus of Technological Practice: Community, System, or Organization?" in *The Social Construction of Technological Systems*, eds. Wiebe E Bijker, Thomas P. Hughes, and Trevor Pinch, (Cambridge: The MIT Press, 1987), p.224.
[21] Randall L. Patton, *Carpet Capital: The Rise of the New South Industry*, (Athens, GA: University of Georgia Press, 1999) p.3
[22] Ibid.

and studied according to the products they render. Stock car racers used technology in dramatic ways to render a product that was much more ephemeral.[23]

More traditional production circumstances depended on technology to produce tangible goods. In the case of stock car racing, the technology of production, not the product, was the element through which networks were constructed. For stock car racers the product is entertainment and advertising. Though less tangible than the goods studied in other specialized production circumstances, the same sorts of networks and negotiations were involved in creating racing spectacle. Exploring networks built largely on communal experience with production technologies is one novel contribution of this work to the literature on specialized producers.

Another contribution to the literature on specialized producers that this work can claim is theorizing how business networks can develop powerful social dimensions of commonality and cohesion. Using and regulating technology to promote entertaining action on the racetrack were crucial to the survival and success of NASCAR stock car racing. The stock car racing fraternity epitomizes the sort of specialized network dependent on "trust, mutual forbearance, and reputation" conceptualized by sociologists Walter W. Powell and Laura Smith-Doerr.[24] In the case of NASCAR a specialized network built technological conventions and codes of behavior that served to "supplement and/or replace the price mechanism or administrative fiat."[25] As an informal institution bound by practical considerations as well as esprit-de-corps, the fraternity of

---

[23] Patton, Ibid, Philip Scranton, *Endless Novelty: Specialty Production and American Industrialization, 1865-1925* (Princeton, NJ: Princeton University Press, 1997) AnnaLee Saxenian, *Regional Networks: Industrial Adaptation in Silicon Valley and Route 128,* (Cambridge, MA: Harvard University Press, 1994)
[24] Walter W. Powell and Laura Smith-Doerr, "Networks and Economic Life," in *The Handbook of Economic Sociology*, eds. N. Smelser and R Soudeberg, (Princeton, NJ: Princeton University Press, 1994) p.370
[25] Ibid.

racers, under the guidance of NASCAR effectively managed technology to perpetuate and grow their sport.

The specialized production perspective also helps enrich the history of small, grass-roots businesses in the South. In this sense, this thesis is also a contribution to the history of what Randall Patton describes as industries that grew "from the bottom up."[26] Stock car racing was a sport that was born on the margins of motor sport and at the edge of mainstream American society. After an initial burst of intense growth, stock car racing concentrated in the South only to re-emerge and grow into a position of national prominence. Like the carpet industries studied by Patton and others, NASCAR's development depended heavily on a cohesive and flexible network of business relationships to become a successful southern export. As stock car racing became a southern enterprise, these networks also frequently became linked to the region.

As Powell and Smith-Doerr suggest, business networks have "essential linkages between economic and organizational practices and the institutional infrastructure of a region or society."[27] This thesis attempts to explore some of the linkages between stock car racing, southern white mill culture, and southern business institutions. Contextualizing the interplay between these institutions offers a fresh look at the history of NASCAR as a regional phenomenon. That NASCAR blossomed as a Southern sport just as external forces spurred by the civil rights movement began to shape Southern institutions is a meaningful coincidence. For many fans, stock car racing combined regional identity, rebellion, and uniqueness in an entertaining form of escape during times of social upheaval

NASCAR was attracted to the South in large part because southern fans were attracted to stock car racing. The concentration of stock car racers in central North

[26] Patton, p.4
[27] Powell and Smith-Doerr, p.370

Carolina was an outcome of the early development of stock car racing rather than a pre-condition. From the outset of NASCAR's organization, the skills and equipment used by stock car racers were very portable. When the chassis were truly like production cars, these skills and equipment were rather specialized. Even though the vast majority of races were conducted in North Carolina, car builders remained spread across the country. Early NASCAR racecar builders worked in small shops as far flung as central Virgina, Florida, Indiana, and North Alabama.[28]

As the design of the NASCAR racecar converged into a uniform machine and the market for racing entertainment concentrated in the southern Piedmont, racers began to gravitate toward Charlotte, North Carolina. Technological uniformity offered the material basis for, what historian Philip Scranton has termed, "supple networks of interfirm contracting and alliance."[29] The central location in Charlotte also ensured easy access to the bulk of NASCAR events. This work explores the context of technology-based networks to help explain of how and why stock car racing became a Southern phenomenon.

Because of the vigor and versatility of the actors involved, and the dramatic changes in American society that coincided with the first thirty years of NASCAR, the early history stock car racing touches on many other rich historical and sociological themes. Issues of gender and the gendering of technology permeate any study of motor sport. So too does discussion of the process and regulation of technological innovation. These themes receive some treatment here, but, because of the limits of this work, remain only partially explored.

---

[28] Wood Brothers in Stuart, Virginia, Smokey Yunick, Marshall Teague and Ray Fox in Daytona, Ray Nichels in Highland Indiana, and the Allison Brothers in Hueytown Alabama

[29] Philip Scranton, Endless Novelty: Specialty Production and American Industrialization, 1865-1925, (Princeton, NJ: Princeton University Press, 1997), p.354

The thesis is organized around chapters separately exploring key elements in the history of NASCAR from 1949 through 1979. These elements include the influential hot rod speed culture, NASCAR, the racecar, racers, superspeedways, and broadcast communications. Each set of actors has its own chronology, and they are arranged according to their influence on the trajectory of stock car racing.

The second chapter addresses the general enthusiasm for automotive speed culture, expressed nationally as a popular fascination with hot rodding. Grass roots enthusiasts had, for decades before NASCAR, built and raced vehicles of humble origins. After the Second World War, this pastime achieved vast popularity and heightened status. Popular acceptance of the idea that a street car should be fast set the stage for the acceptance of production-based racing.

The struggle to bring a structured form of auto racing forth from the plenty of mass production is the subject of chapter three. It covers the institutional machinations that defined and nurtured stock car racing in the United States, in particular it covers the history of NASCAR. This sanctioning body, that harnessed popular enthusiasm for motor sport offered, a new direction for organizing and capitalizing on automotive spectacle. NASCAR was first to recognize the potential of existing grass-roots production-based racing and organize it on a national scale. Though formed in a spirit of collective cooperation, NASCAR soon became a dictatorship under the control of Bill France. In this form it consolidated control over the existing forms of production-based racing and fended off a threat from the American Automobile Association's Contest Board, the existing giant among sanctioning agencies. After the dissolution of the Contest Board in 1955, NASCAR took advantage of the strong demand for racing concentrated in some southern states by building a strong fan base across the Southern Piedmont. This period of southern retrenchment ultimately flavored NASCAR stock car racing as a distinctly regional phenomenon.

Chapter four offers a description of the development of the vehicles used in stock car racing. Rather than use actual production models, the technical details of the NASCAR “stock car” were negotiated between the needs of NASCAR, stock car racers who worked in the NASCAR championship series, and the automakers. Over the course of NASCAR’s first three decades, the strictly stock cars of competition were reshaped into a particular conglomeration of production-based components uniquely suited to creating “stock car” racing spectacle. Through occasional wholesale substitution of components from production cars and light trucks, and constant incremental alteration and reinforcement of components, the strictly stock formula describing the technical details of the NASCAR “stock car” was transformed into a “formula stock.” This “formula stock” was unlike anything ever produced on any assembly line, yet it came to represent the fruits of mass-production to consumers and fans. Though the creation of this chassis and driveline was not always a smooth process, it did render a vehicle that was inexpensive to build and maintain, strong enough to withstand close, often violent competition, capable of representing of the larger commercial environment, and well adapted to competing in long, fast races on large speedways.

The fifth chapter offers an analysis of the fraternity of racers who provided labor, organization, and training to keep the tracks full of competitive action and popular enthusiasm for racing high. As a fraternity these racers cultivated a group identity that divided the world into categories of racers and non-racers. Using systems of proprietary knowledge tied to the technology of stock car racing, racers limited access to their ranks. Racers also used organizational logic and ritual common to more traditional fraternities. They organized themselves hierarchically within each race team and recognized the centralized control of Bill France and NASCAR. The procedure of each race, in particular the hyper-masculine ritual of the pit stop, publicly re-affirmed their control exercised by their fraternity over stock car racing. The strong similarities between the informal

fraternity of stock car racers and more traditional fraternities offers clues about how continuity and participation was assured without a rigid business arrangement between NASCAR and individual racers.

The key component in building the credibility of stock car racing, prescribing the technical details of the NASCAR "stock car," and the fraternity of stock car racers was the construction of impressive edifices to host races. Chapter six is an historical exploration of the spaces where stock car races were staged. It focuses primarily on the transition from dirt tracks to paved speedways, and from speedways to superspeedways. It also covers issues of how larger, more modern venues shaped perceptions and values within the sport, and ultimately precipitated conflict between American automakers and NASCAR. For NASCAR and stock car racing, the scale of the superspeedway was a springboard into mainstream mass media, and as such the lure that brought the full power of Detroit engineering to bear on the issue of winning races. The consequence of the superspeedway was assumption of complete control over racing technology by NASCAR and the attraction of permanent broadcast media attention to the sport.

The final chapter traces the expansion of stock car racing beyond the race venue via broadcast media. Development of the stock car racing machine was all but over by the close of the 1970s. Innovation of the "formula stock" vehicle that carried advertising messages and racing heroes at alarming speeds on tracks and across the televisions of consumer fans had all but ceased. Simultaneously, the development of the larger machine of NASCAR-managed promotion spectacle had just reached the final phase of development, acceptance and growth as a mass media entertainment phenomenon.

CHAPTER 2

AUTOMOTIVE SPEED CULTURE IN THE 1950S

Among racers, the axiom, “The quickest way to make a small fortune in racing is to start with a large one” is often repeated as a universal truth.[30] One thing in common between all racers, regardless of historical context or form of motor sport, are the hard constraints of economic reality. The rule that more money equals more time spent racing and “more” car, and that these should add up to faster times, is inescapable. Indeed, for well-developed race programs, going faster is sometimes described as a need for more “cubic dollars, not cubic inches” (reference to engine size).[31] For this reason, mass production of low cost automobiles exerted as profound an impact within motor sport as it did anywhere else in American society. The lower cost and greater availability of cars produced in mass reshaped recreational as well as utilitarian use of the automobile.

Most notably, mass production facilitated racing by creating vast reserves of spare parts. Potential racers could obtain those parts through regular supply networks, or from automotive recyclers once the cars themselves had finished their useful lives. Such material abundance prompted the development of the second user benefit of mass production. Because availability of technology is a precondition for experience with technical systems, mass production indirectly supported the creation of vast bodies of mechanical knowledge. When technical knowledge became common, and the raw materials for a racecar were available at low cost, conditions were right to support widespread participation in motor sport.

With mass production, automobile races were less often events staged between sportsmen of means driving exotic purpose-built machinery, and more frequently

[30] Smokey Yunick, interview with author, Daytona Beach, Florida, April, 2001
[31] Ibid

contests between semi-professional enthusiasts using equipment that originated on an assembly line. Though more exclusive forms of motor sport continued, after the introduction of mass production, contests between purpose-built cars, such as the annual Indianapolis 500, came to represent a decreasing percentage of racing. Once cars became more affordable, using them for recreation became more affordable. As a consequence, an underclass of racing series developed across the country in the years before the Second World War. Participants did not enjoy (and indeed would have little benefited from) recognition by the premier sanctioning body in the United States, the American Automobile Association (AAA). The racers typically were organized on a small scale to compete at a limited number of local tracks.[32] Though based on mass-production components, the cars competing in these smaller series were sometimes heavily modified with "speed parts" produced for the performance "aftermarket" or a conglomeration of production components from different makes and models.[33] Locally maintained rules governing these events were frequently less focused upon the mechanical details of competitor's mounts than the quantity and quality of racing entertainment. Nevertheless, the important feature that distinguished them from the cars under AAA sanction was that they were, as creations largely composed of mass-produced components, less expensive to build, modify, and maintain.

A purpose built racecar is conceived and built as a racing machine. As such these cars are typically expensive to operate and offer few ancillary uses. Before the Model T, there were also plenty of production models (though not mass produced) that were pressed into competition service. Like all production-based racers, these vehicles were conceived primarily as transportation appliances and pressed into recreational use

[32] Eugene Jaderquist, "Competition and The AAA," *Motor Trend*, July 1952, p.27, and *National Speed Sport News*, passim.
[33] "Aftermarket" is a common automotive industry term describing the post-production repair parts and accessory business.

on the racetrack. The designs facilitating assembly speed that were necessary for mass production heightened the distinctions between purpose-built and production-based racing equipment even as it expanded the ranks of sporting competitors across the nation.[34] Though typically outclassed by purpose-built cars, a production-based racing vehicle had the advantage of being less expensive. As such there were fewer considerations of cost and supply attached to racing with production-based cars. For this reason, fields of competitors at production-based racing events were usually composed of more cars than competed in purpose-built events. Though overall speeds were typically slower, contests between production-based cars had the advantage of being contested between more competitors. This situation had the added benefit of potential association within the fan's mind between the cars on the track and their personal vehicles. After the introduction of mass-production cars to the tracks of America, racing offered the possibility of association between spectator and competitor as well as association between spectator and the tools of competition.

Because racers based on products of mass production were easily associated with vehicles in use on public roads, automakers saw the publicity advantage of successful racing from the beginning. While few spectators ever ran with a football or stood at home plate by the middle of the 20th century, most people drove cars with some regularity. Indeed, for most Americans past the age of 16, driving a car was most often a necessity. In racing that featured production-based equipment; the public could feel an association with the competitors and possibly affection for the winning car. Introducing

[34] Leo Levine, *Ford: The Dust and the Glory,* (New York: Macmillan, 1968), p.56-101, Though there is no accurate record of the number of production-based races occurring after the rise of mass production, evidence in the sporting and general automotive literature indicate a general rise in the number of races attributable to the use of mass produced components for racing. The best evidence of this trend is the increase in aftermarket performance parts suppliers such as Frontenac, Rajo, Chevrolet, Winfield and others.

"performance"[35] as a desirable characteristic of an American automobile depended heavily on demonstrations of the competitive virtues of a make or model.

The distinction between more traditional sporting equipment and that used by automobile racers has another important dimension. Even though the average spectator was more likely to associate with using a car than a baseball bat, the car was a much more costly investment. It is useful to remember that in motor sport, moreso than in other sports like baseball or tennis, equipment represents a large investment. Understanding this expense and the motivations that get cars onto the track is crucial in sorting out how racing became a mass phenomenon attracting attention from some of the largest commercial institutions that ever existed. The concept of racing a production car, and at the same time selling this car, straddles the domains of recreation and utility. For production-based racing, the manufacturer of the sporting equipment could facilitate sport while simultaneously advertising a durable good of considerable cost enjoying widespread demand. For this reason, marketing and promotion efforts as attached to

[35] Within automotive culture, the term performance is generally construed broadly as the physical aspects of operating a vehicle near maximum capacity. Performance in the physical dimension involves processed typically understood in the vocabulary and perspective of physics. Conventional definitions within the more physical dimension of automotive performance offer measures of physical phenomena such as horsepower, cornering load, or weight. Other physical characteristics such as decibels, elapsed time, or top speed combine elements of both the physical and the theatrical aspects of automotive performance. That is to say, these phenomena can be measured without sophisticated equipment and as such are accessible to spectators. Other more purely theatrical elements of automotive performance, borrowing terms and measures from the world of physics also have tremendous cultural importance. This perspective views technology in a role analogous to the props of a conventional theatre production. Typically, in the case of a vehicle, these elements offer the suggestion that a vehicle is capable of physical performance. Clearly some of the cars produced by enthusiasts were intended to operate according to both aspects of the term performance. Therefore, the significance of performance modifications made by amateur enthusiasts should not be measured in what discernable physical gains were rendered, but rather in the aspirations of the actor. In gauging the impact of the hot rodding movement, even in its infancy, wanting your car to look fast or special, is as important as how fast or special it truly was.

automobile racing assumed a cultural and financial gravity probably never associated with selling more conventional sporting equipment.

Before stock car racing came to epitomize the height of Detroit-funded performance, hot rodders shaped the expectations of consumers by developing a production-based aesthetic of performance all their own.[36] Hot rodders produced one-off creations that offered speed, style, and, in some cases, luxury from a mass-produced car. As many Americans embraced and celebrated the technological enthusiasm of hot rod culture, the public began to expect an opportunity to acquire speed, style, and luxury in the cars they bought from Detroit automakers.[37] As the age of mass consumption resumed after the Second World War, recognition of this factor helped shape the aspirations of stock car racers, the men that organized the series they raced in, and the factories that sponsored them.

As racing and general enthusiasm for speed grew, mass producers soon had a vested interest in seeing their products applied to use in competition. Whether cars were racing on a track or cruising on city streets, the assertion that racing performance suited the needs of the average user found a remarkably receptive audience. The idea that a vehicle could be at once capable of utilitarian use and worthy of racing competition is an important cultural feature of the relationship between mass production and motor sport. In cold War American society where power, especially latent power, meant status and security, this combination became a powerful sales tool for the automobile industry.[38] As we shall see, this audience was first introduced to high performance through the popularity of California Hot Rod enthusiasts.

---

[36] Robert Barsky, "The Size and Scope of the Hot Rod Industry," *Automotive Industries,* August 15, 1949, p.70.
[37] Jeffry L. Meikle, "Streamlining, 1930-1955," in *Industrial Design: Reflection of a Century,* ed. Jocelyn de Noblet, ed, (Paris : Flammarion/APCI, 1993), p.66.
[38] David Nye, *American Technological Sublime*, (Cambridge: MIT Press, 1996), p. 228-229.

Initially hot rodding enthusiasts attempted the combination of speed and everyday utility through altering their production-based vehicles to resemble and perform more like custom-built racing vehicles. Though hot rodders often focused on accentuating either speed or luxury, when these perspectives were absorbed by Detroit, they were combined. In time the ideal of combined speed, style and luxury would drive the design and marketing of American automobiles. During the 1950s and 1960s, the notion that a vehicle could be simultaneously mass-produced, operated most often as a utilitarian appliance, and be suitable for racing competition ultimately eclipsed reason. Though the suggestion that a racecar could be a utilitarian passenger car became a powerful tool for vehicle sales, the idea was not wholly formed in the advertising departments of American automakers. The suggestion that a consumer car could or should possess the capacities of a racecar was also not conceived by devotees of the checkered flag. Though it found expression in the advertising copy of corporations and on racetracks across the nation, the kernel of this ideal is a consequence of applied enthusiasm for automotive speed. The idea that you could have a car that was equally suited to street use and performance on the track resulted from the passion for automotive "improvement" and "experimentation" that began with widespread availability of the elements necessary for modification. To explain how this notion that stock cars were appropriate for use in motor sport competition came into being, we must logically begin with the hotbed of production-based automotive enthusiasm after World War Two, California.

In the wake of the First World War, Henry Ford's "Model T" forever altered the automotive landscape. It brought the virtues and vices of automobiles to the multitudes.[39] Mass production changed the car from an expensive luxury, or capital

[39] James J. Flink, *The Automobile Age*, (Cambridge: MIT Press, 1993), p.36-51, Leon Mandel, *American Cars*, (New York: Stewart, Tabori & Chang, 1982), p.57.

investment, into a ubiquitous appliance. The Model T signaled the divergence between automobiles built by hand for the few and cars built through mechanization for the many. With the "Tin Lizzie," everyone could experience the power, personal freedom, and entertainment of mobility.

The decade of the 1920s saw drastic change in the automotive industry, as many producers unable or unwilling to realize the economies of mass production techniques were driven from business. Yet changes wrought by Fordism on the workshop floor and in the marketplace only explain a portion of the impact of mass production on automobility in the United States.[40] After Ford brought the possibility of auto ownership to the masses, a substantial number of Americans owned and operated automobiles for the first time. Among those experiencing cars for the first time, mass production offered an opportunity to experience an automobile as an owner/mechanic and motor sport as a participant. The ubiquity, standardization, and mechanical simplicity of the Model T helped swell the ranks of motoring enthusiasts. Frequently, ownership of a "T" was accompanied by the cultivation of basic skills as a mechanic. Indeed, as a budding do-it-yourself mechanical culture developed using the Model T, some enthusiasts found as much delight under the hood as behind the wheel.[41] No longer the domain of wealthy

---

David A. Hounshell, *From the American System to Mass Production, 1800-1932*, (Baltimore: Johns Hopkins University Press, 1984), 274-275.

[40] Stephen Meyer, *The Five Dollar Day*, (Albany: State University of New York Press, 1981), p.194 -195

[41] Leon Mandel, *American Cars*, (New York: Stewart, Tabori & Chang, 1982), p.313 "The Beginnings of the Western Aftermarket: A Motor West Special Report," *Motor West*, p.2, 1976.

sportsmen and specialist "mechanicians,"[42] amateur automotive repair and sporting use experienced a boom during the decade before the depression.[43]

Evidence of the impact of mass production on the world of automotive enthusiasm is offered by the myriad of accessories produced for the Model T. Items varying in cost, ranging from simple to complex and entailing minor or extensive modification of original specifications, were advertised in automobile-oriented publications, newspapers, and travel guides.[44] By 1920, an array of accessories as diverse as a steering wheel locks, pneumatic starters, snow tractor conversions, and cut glass bud vases were available for the Model T.[45] The interchangeability and mass consumption of the Model T facilitated the creation of an "aftermarket" for motorists interested in altering the performance or appearance of their car.[46] The genesis of this market is significant because it signaled the transformation of the relationship between car and owner. Though the Model T and later mass-produced cars were built to be identical, with modest investment owners could transform their car from an appliance into an expression of individual ability and preference.[47] This suggests that, if the owner

---

[42]Contest Board of the American Automobile Association, *AAA Official Competition Rules* (Washington, D.C.: Contest Board of the American Automobile Association, 1938), p.38. The term "Mechanician" is an amalgam of mechanic and technician and a somewhat stilted term used to describe a mechanic.

[43] Borg, Kevin "Doughboys and Grease Monkeys: American Soldiers Learn to Repair the Motor Truck, 1916-1918," *Automotive History Review,* No. 32, Spring 1998, p. 54. Many men in the 1920s had learned to repair trucks and cars during the First World War as mechanics for the Army, YMCA, and Red Cross.

[44] Review by author of Automobile magazine, newspapers from the 1910s and 1920s, and Dyke, A.L., *Dykes Automobile and Gasoline Engine Encyclopedia*, (St. Louis: A.L. Dyke, 1918), passim.

[45] Kenealy, James L. *Model T Ford Authentic Accessories*, Seattle: By the author, 4015 N.E. 178th, Seattle, WA. 98155, 1976), Vol. 1-3.

[46] "The Beginnings of the Western Aftermarket: A Motor West Special Report," *Motor West*, 1976, p.2-3.

[47] Altering a vehicle to suit individual taste or aspirations would later come to be known commonly as "hot rodding." Hot rodding as an activity has never been formally defined, and therefore includes every degree of post-production alteration to the car. What is most significant is the owner's intention of enhancing performance.

was inclined, any model T could be altered to become less like a utilitarian appliance, and more like a personalized custom-built technology.

Though many aftermarket products were intended to make normal repair, maintenance and operation easier or more economical, some items were advertised only on the basis of increasing vehicle performance. Although advertising copy typically emphasized the economic benefits of a more efficient engine, it was clear that the possibility of greater acceleration or higher top speed was the intent. In one advertisement, the copy begins describing an overhead- valve cylinder head as "A Revolution in Power – Makes the Ford a Real Racer" and goes on to mention how the modification was "… practical for Ford pleasure cars and Ford trucks whether you care for speed or not."[48] Many of the more elaborate items, requiring more developed degrees of mechanical ability, were intended to make the Model T performance more like that of a racecar.

Among such performance accessories were streamline replacement bodies that promised to give "… your Ford that snappy, European racing look,"[49] and ignition systems that would render "a tremendous, power-giving explosion that puts the Ford in the class with the higher priced cars."[50] Even before the term "hot rod" was coined, the practice of building what came to be known as hot rods was established.[51] In this process, enthusiasts amended automobiles through building or buying performance enhancing accessories to replace or supplement existing production components. Whether enthusiasts sought actual increased speed or a car with a speedy appearance, their efforts shared common elements. In both cases enthusiasts were working to meet their conception of high performance. For some, high performance was more about

---

[48] Kenealy, Vol. 1, p.204.
[49] Ibid, PACO MFG. CO. advertisement, p. 90.
[50] Ibid, Philbrin Corporation advertisement, p. 224.
[51] Zelenko, Felix, "Hot Rodders Then and Now," *Hot Rod Magazine*, July, 1955, *Rod and Custom*, August, 1954, p.7,

mastering the physics of horsepower. For others, performance involved attention to the aesthetics of speed and luxury. This "do it yourself" ethic and dual emphases on speed (physical performance) and style (theatrical performance) formed the ideological basis of protean hot rod culture as it emerged nationwide during the 1920s.

After discontinuation of Model T production in 1927, aftermarket entrepreneurs continued to concentrate their efforts on Ford parts.[52] There were plenty of "T's" for tinkerers to work with, and the new Model "A" proved as plentiful and adaptable as its predecessor.[53] Economies of scale realized through standardized mass production continued to heavily determine which components were most available to creative enthusiasts willing to tinker. This brand loyalty was likely due to convenience as well as technical criteria. Despite losing new car market share during the late 1920s, Ford still managed to produce massive quantities of light cars with robust engines amenable to modification. As they reached the used car market, the Model A and later all Fords with the flathead V8 became the car of choice for hot rodders.[54] Though the era of single model dominance was over in the new car market, Ford models retained a hold on most of the aftermarket parts production. Enthusiasts chose four-cylinder and eight-cylinder Fords because of sturdy simple design, and the overwhelming availability of both stock and custom parts. Likewise, manufacturers of speed parts were willing to build and market accessories for successive Ford models because there were so many out there

---

[52] Hounshell, p.279.
[53] "More About the T's", *Rod and Custom*, March,1954, p.5., Don Francisco, "4 Barrel Speed Secrets: Single Overhead Cam Miller," *Hot Rod Magazine*, December 1950, p.14. Leeg, Alan, "Model T Fan," *Hot Rod Magazine*, October, 1951. p.46-47
[54] Don Francisco, "V8's From Ford to Firepower," *Hot Rod Magazine*, July 1951, p.14 Article covering history of V8 alludes to ubiquity of Ford "flathead," "Stroking the Ford V8," *Rod and Custom*, May 1954, p.22

for enthusiasts to tinker with.[55] Eventually these vehicles came to be known as "rods" or "hot rods."

Though the ubiquity of mass production provoked a truly national trend of automotive tinkering, in certain areas the hot rod ideal flourished with greater intensity than elsewhere. Around the Los Angeles area, "hot rodding" developed into a movement of sizeable proportions before the Second World War. Though there were many reasons for this concentration, chief among these was the role of the private car during the rise of hot rodding. Unlike most cities elsewhere in the United States, Los Angeles developed in a place and time that permitted expansive horizontal growth. As other cities developed skyscrapers, with the help of trolley lines and the automobile, Los Angeles sprawled into a major city of a very different form. The city grew to suit automobiles. As historian James J. Flink relates,

> the combined effect in the 1920s of improved roads, better tourist services, and the closed car was that increasingly people came to Southern California in their motorcars. Motorization proliferated much faster than population. Between 1919 and 1920, while the population of Los Angeles roughly doubled, automobile registration increased 550 percent, from about 141,000 to 777,000.[56]

This trend did not reverse during the 1930s. By the close of the Second World War, the city and its inhabitants, therefore, were accustomed to accommodating the car. More importantly, substantial use of the automobile in Los Angeles prior to the war guaranteed an ample supply of used parts, technical knowledge, and specialty automotive machining and fabrication services.

---

[55] Kenealey's three volume *Model T Ford Authentic Accessories*, and later Hot Rod parts advertising all focus heavily on Ford engines and drivetrains built from 1916 through 1953. This emphasis persisted until overhead valve engines, especially the small block Chevy, became widespread in the late 1950s.
[56] Flink, p.142.

Other factors helped Southern California spawn a thriving hot rod culture. The mild California climate permitted near year-round experimentation and use. On most evenings and weekends, enthusiasts could test their skill as tuner or driver at numerous oval track events, drag races and car shows. In comparison, speed enthusiasts in most of the eastern U.S. had a more limited season of activity. Along with climate and a bounty of cars and their support industries, the geography of California was suited to amateur speed contests. The long flat dry lake beds, long boulevards, and straight flat farm roads common in the valleys of Southern California provided perfect places to try out a fast car. As one frustrated New York hot rodder confessed, "we boys up here in the Northeast don't have the money or time to put into straightaway or competition cars. It's not that we don't like them, but even if we did build one, we have no place to run that type of machinery."[57] Geography and climate certainly helped fuel the vigorous speed culture in southern California after World War II.

The possibility of working and racing with cars for most of the year probably explains much of the existing technical knowledge and institutions that also helped southern California become a center of automotive speed enthusiasm. By chance, the growing region became home to a number of very talented mechanics, machinists, and designers. Consequently, Los Angeles hosted the facilities of several purpose-built racecar fabricators whose precedent and expertise helped educate and inspire local enthusiasts. Racers like Harry Miller, Eddie Meyer, Frank Kurtis, Leo Goosen, Fred Offenhauser, and Clay Smith built cars to run in AAA's premier Championship series, and also supplied parts to enthusiasts using production-based equipment.[58] The shops

---

[57] John Herveieux, ''Another John Males?'' *Rod and Custom*, May 1954, p.6. see also, Don Taroll, ''Western Advantage,'' *Hot Rod Magazine*, January, 1951, p.29

[58] Gordon White, *Offenhauser*, (Osceola: MBI, 1996), pp.1-40, 97-99. see also, ''Touring the Hot Rod Shops: Eddie Meyer Engineering,'' *Hot Rod Magazine*, June, 1951, p.28. Don Francisco, ''4 Barrel Speed Secrets: Single Overhead Cam Miller,'' *Hot Rod Magazine*, December 1950, p.14.

that concentrated on purpose built racecars, likely also provided services, materials, and employment, to aspiring hot rodders.

As a car-based city, Los Angeles offered ample opportunities for good speed mechanics to hone their skills maintaining unmodified production cars. Often the talents of such practiced mechanics turned to recreational use of automobiles. The skills of tinkerer geniuses like Ed Winfield, and Vic Edelbrock, Frank McGurk, Ed Iskenderian, Wayne Horning, Stu Hilborn and others were directed primarily at production-based equipment and came to have profound influence on the postwar hot rod scene as well.[59] The close relationship between cars and southern California, as well as a geography and climate suited to automotive recreation helped feed expertise and speed parts to hot rodders both before and after the Second World War.[60]

After the Second World War, California speed culture enjoyed a renaissance that influenced auto enthusiasts and ultimately automobile consumers nationwide. Hot rodders carried on the tradition of altering production vehicles by modifying stock components, hand-crafting custom accessories and fitting aftermarket add-ons. For hot rodders, one happy consequence of the War was the vast supplies of surplus metalworking skills, machinery and supplies that wound up in and near Los Angeles. Early accounts of hot rodding describe a bounty of surplus materials and tools that supplied the raw materials for amateur technical innovation.[61] One well-known example of using military surplus to build a hot rod was a version of speedster best known as a "belly tanker." These were high-speed streamlined cars built by stuffing a V8 engine and rudimentary chassis into an streamlined, torpedo-like auxiliary "drop tank" leftover from

---

[59] These hot rod pioneers are mentioned in Hot Rod magazine advertisements and articles throughout the first five years of publication (1947-1951) See *Hot Rod Magazine*, December 1950.
[60] Smokey Yunick, *Best Damn Garage in Town: The World According to Smokey,* (Daytona Beach: Carbon Press, 2001), p.83,261
[61] Akton Miller, "Hot Rods – I love 'em," *Hot Rod Magazine*, March 1951, p.10.

the war.[62] The pages of *Hot Rod* and *Rod and Custom* magazines from the early 1950s are filled with examples of other military surplus, things like seat belts and airplane engines that were pressed into service as hot rod parts.[63] After the Second World War, geography, industry, and rekindled American passion for automobiles combined to make southern California the hotbed of hot rodding.[64]

Fascination with the skill and creativity of the hot rod sub-culture quickly spread eastward and outward among automotive circles. A 1949 study conducted by sociologists at the University of Chicago describing "Hot Rod Culture" was reprinted in the winter 1950 *American Quarterly*.[65] The fact that hot rodding attracted the attention of academics in Chicago and the editor of the *American Quarterly* suggests that the influence of hot rod culture was growing. In drawing distinctions between the sorts of individuals who participate in hot rodding, the author, Gene Balsey, classified enthusiasts according to the types of cars they build. With this categorization, he developed distinctions between hot rodders interested in an aesthetic of speed and those more interested in the application of speed. These distinctions described the two sorts of influence hot rodding exercised over the creative imaginations of Detroit designers and engineers as the decade of the 1950's wore on.

Balsey also suggested that hot rodding was an implicit critique of mass production.[66] He described hot rodders as creators of new engineering and styling aesthetics, altering products intended for mass consumption to suit their own ends. He suggested that the sense of rebellion embodied in the unconventional recreational use of

---

[62] "Motorama," *Hot Rod Magazine*, January, 1953, p. 14.
[63] "Safety Belts" *Speed Age*, 1950, p.49.
[64] Gordon White. *Offenhauser*, (Osceola, WI: MBI, 2001), p. 17-21.
[65] Gene Balsey, *American Quarterly*, Vol. 2, No.4, Winter 1950, p. 353.
[66] H.F. Moorhouse, *Driving Ambitions: an analysis of American hot rod enthusiasm,* (Manchester: Manchester University Press, 1991), p.75 and David Gartman, *Auto Opium : a Social History of the American Automobile*, (New York: Routledge Press, 1994), p.171-172.

automobiles was a rejection of the stock production automobiles offered by Detroit for conventional use. “The hot rodder and his circle are highly articulate in their objection to the Detroit product as an automobile,” Balsey wrote, “and the reason is that they have little respect for the Detroit solution of a problem in transportation, engineering, and esthetics.” He continues, “The huge scale of the hot rodder’s protest is immediately suggested by the sales of its parts industry – a cool eight million per year gross income.”[67] Balsey’s article suggested that consumers wanted excitement and status from their car purchase, not just utility. He also suggested that Detroit was aware of what hot rodders were up to.

Though other cultural phenomena probably influenced public opinion, as expressed in printed media, the scale of fascination with the hot rod overshadowed most other popular automotive movements. Both in the media available to the general public and in that targeted to the automobile industry, the attention devoted to other forms of automobile enthusiasm did not compare with that given hot rodding. Stock car racing, as conducted by the AAA and NASCAR during the early 1950s, was a growing example of the fusion of mass production and automotive recreation. Yet at the time it did not attract the same attention as hot rodding. Likewise, sports car racing, as prompted by the influx of imported European sports cars and performance sedans, did not receive the same attention as hot rodding. A review of mainstream automotive publications like *Motor Trend* and *Car Life* show much more attention to hot rodding activities on the West coast than any other sort of popular automotive movement.

More specialized automotive literature mirrored this fascination with hot rodding. During the decade of the 1950s, there was but one, brief article on stock car racing in *Automotive Industries*, the major trade journal for the world of car making. During that same period, there was little mention of the growing amateur sports car rally and road

[67] Balsey, p.355.

racing movement. In the early postwar years, enthusiasm for the emergent culture of hot rodding dominated mainstream discussions of automotive enthusiasm and filtered across geographic and class lines to all of America. In November 1945, *Life* magazine published an article describing how hot rodders raced at "100 mph across the California desert."[68] Another *Life* article in 1949 entitled "The Hot Rod Problem: teen-agers organize to experiment with mechanized suicide" explored the youthful exuberance of California speed culture.[69] And the fascination with youthful speed culture was not restricted to the United States. Fascination with hot rodding automobiles even stretched to America's closest European counterpart. A *New Yorker* article republished in the October 21, 1949 issue of the British motoring magazine *The Autocar*, described the U.S. hot rod industry as a 12 million dollar a year phenomenon capable of attracting over 100,000 fans to a car show.[70]

The notoriety and popularity of hot-rodding nation-wide was not due solely to publicity in mainstream publications. Magazines such as *Hot Rod*, *Rod and Custom* and *Car Craft* emerged during the late closing years of the 1940s to exploit the growing hot rodding market**.** These monthlies offered a goldmine of information for hot rodders including feature pictorials of other enthusiast's vehicles, speed parts advertisements, "how-to" technical information, and drag racing rules and schedules. Articles with titles like "Compression Ratio," "Fuel Injection Facts" and "Chop Your Top" described in great detail techniques useful for increasing horsepower or altering the exterior of production automobiles.[71] As one *Rod & Custom* editor pointed out, "I like to think of *Rod & Custom* as a sort of gathering place for ideas and for reports on projects that auto enthusiasts

---

[68] "Hot Rods," *Life*, November 5, 1945, p.86-88.
[69] "The Hot Rod Problem," *Life*, November 7, 1949, p.122-124
[70] "Editor's Page," *The Autocar*, October 21, 1949, p.1174.
[71] Cisco, "Boosting Compression Ratio," *Hot Rod Magazine*, June 1951, p.16.
Hilborn,Stu, "Fuel Injection Facts," *Hot Rod Magazine*, August, 1951, p.12.
Pendergast, Bob, "Chop Your Top," *Rod and Custom*, October, 1951, p.14.

throughout the country have seen fit to undertake."[72] Through editorials and correspondence columns they also refereed the evolving custom car engineering and styling aesthetic as participants shaped the performance parameters of their hobby.

Booming popular attention to speed sport as fostered by the explosive national growth of hot rodding helped these magazines become nationally influential in shaping speed culture. One enthusiast publication in particular helped organize and expand the hot rod movement. *Hot Rod* magazine realized fantastic popularity and launched an automotive publishing empire. As an indication of the popularity explosion enjoyed by the hot rodding movement, by 1949, only two years after its introduction, *Hot Rod* magazine enjoyed a monthly national circulation of 290,000 readers.[73] In 1951, *Hot Rod* was the central organizer of the National Hot Rod Association, a confederation of enthusiasts, promoters, vendors, and local car clubs that organized drag racing events nation wide.[74] Soon competing magazines such as *Hop Up, Honk, Rod and Custom, Speed Mechanics*, and *Car Craft* propped up to tap the burgeoning readership of the pioneer.

Even as hot rodding, horsepower and automotive performance became popular phenomena, widespread fascination with speed culture found expression in more traditional popular mediums. In one notable crossover, Hot Rodding staked a claim in the music and dance arenas of popular culture. In 1955 Jack Benny's Sportsmen quartet launched the single title, "The Hot Rod Hop." According to *Hot Rod* magazine, "The setting for the lyric is a hot rod garage, where the gang dances to a beat-up piano, augmented by extemporaneous automotive rhythm sounds" rendered by notable studio musicians Buddy Cole, Don Raffell, Chuck Gentry, and Sam Weiss. Meant as a fusion of youthful interest, the "Hop" included authentic hot rodding sounds such as "the click of a

[72] "Editorial Page," *Rod & Custom*, May 1954, p.5.
[73] Balsley, p.355.
[74] "Hot Rodding Goes National," *Hot Rod Magazine*, June 1951, p.9.

jack, a fender grinder, a mallet hitting tire beading, a brake drum being tapped by a wrench, and a twin-pipe Cad draggin' wagon engine."[75] Even if "The Hot Rod Hop" did not secure an exalted place in musical history, it does demonstrate consciousness of hot rodding among scions of popular culture.

Beyond coverage in conventional popular venues, the ideas and ideals of hot rodding appeared in influential industry publications. At first, such widespread popular fascination with speed and speed styling seemed almost to catch publishers of automotive industry periodicals off guard. A February 1949 article written by the technical editor of *Automotive Industries* posed the question, "What makes Hot Rod Engines Hot?" The discussion that followed offered technical descriptions of engine modification techniques tried and trusted by the hot rodders.[76] 1950 editions of *Ford Field*, described the mechanical details and profit potential of the "Ardun" overhead valve conversion for a "flathead" Ford V8, a popular (though costly) hot rod modification.[77] Industry fascination with the technical developments of hot rodders extended beyond trade publications into the professional societies in part responsible for American cars. In 1951, representatives from *Hot Rod* magazine were invited to speak at the annual meeting of the Society of Automotive Engineers (SAE) and exhibit an actual hot rod.[78] By 1952, *Ford Field* was reporting the establishment of an annual Ford-funded scholarship to be awarded to a victorious hot rodder competing at the annual speed

---

[75] "The Hot Rod Hop," *Hot Rod Magazine*, July 1955, p.58.
[76] John Bond, "What makes Hot Rod Engines Hot?" *Automotive Industries*, February 15, 1949, p.32-33.
[77] The "Flathead" Ford V8, built between 1932 and 1953 was the main engine developed by hot rodders during the 1950s. It was known as the "flathead" because, with the valves arranged in the cylinder block, the cylinder heads were virtually flat. "Ardun Engine Conversions," *Ford Field*, February, 1950, p.18. James Kay, "Overhead Valves . . . For Higher Horsepower," *Ford Field*, August 1950, p.18.
[78] Wally Parks, "Hot Rod Attends National SAE Meeting in Tulsa," *Hot Rod Magazine*, January, 1951, p.12.

events held on the salt flats in Bonneville, Utah.[79] Clearly, hot rodding was seen both as a place to find new technical ideas and cultivate new technical talent.

Attention directed toward hot rodders in these magazines and through these contests suggests that auto manufacturers were as fascinated with the burgeoning cult of hot rod enthusiasts as the rest of the country. Numerous articles throughout 1949,1950 and 1951 in the trade publication *Automotive Industries* suggest that the creativity and popularity of Hot Rodding were known to automotive executives and engineers. The February 1949 article entitled, "What Makes Hot Rodding Hot?" describes in great technical detail how hot rodders coaxed extra performance from production machinery.[80]

> A subsequent article in *Automotive Industries* described how the youthful hot rod culture had changed the automotive market, "The higher compression, lower center of gravity, improved ignition, and streamlining that are so popular in today's advertising headlines," noted its author, "are old hat to the youngsters whose cars are turning 150 mph in their speed runs."[81]

Another article entitled, "$150,000 Worth of Hot Rods"[82] described recent hot rodder styling and horsepower-producing innovations in evidence at a large hot rod show in Los Angeles. Ample photographs of engines and whole vehicles from this large west coast hot rod show articulated the growing size, dynamism, and popularity of hot rod culture.

Fascination with hot rod culture included speculation about how it might influence American automotive culture in general. In his article, "Size and Scope of the Hot Rod

---

[79] "Hot Rodders Will Compete For $1000 Scholarship and Gold Trophy," *Ford Field*, August 1952, p.36.
[80] John Bond, "What makes Hot Rod Engines Hot?" p. 32
[81] Robert Barsky, p. 70
[82] "$150,000 Worth of Hot Rods," *Automotive Industries*, April 15, 1949, p.38.

Industry," Robert Barsky observed that "…every hot rod owner is a customer for the products and supplies of the conventional automotive market" and that "…the taste of a generation of perspective new car buyers is being shaped by the refinements they are making on their own cars."[83] He described how the youthful hot rod culture had changed the automotive market. Barsky continues,

> Certainly the taste of a generation of new car buyers is being shaped by the lessons they are learning in making … refinements on their own cars. They are going to demand of Detroit the characteristics they prize so highly: absolute functionalism in design and decoration; a high level of engineering efficiency; and simplicity of maintenance and repair. [84]

Popular fascination with the combination of horsepower, speed, and style resulted in part from the influence of hot rodding. This aesthetic of performance, of speed, luxury, and speedy styling as expressed in the creations of hot rodders would shape the expectations of American automotive consumers.

By 1950 two forms of vehicles, alternately focused on speed and style, emerged within the hot rodding movement. Expanding horsepower and the plethora of speed parts incorporated into factory designs resulted more from the hot rodders purely interested in drag racing and horsepower. As drag racing competition began to require heavy financial commitment, a different sub-group of hot rodders began to focus more on the external appearance of their cars.[85] Car shows, hot rodding magazines, and increasing public dislike for the dangers of speed contests on public roads helped boost the status of the purely stylistic dimension of hot rodding.

Though the movement probably began as an attempt to mimic the technically sophisticated pure-racing variety of hot rod, the customizers, as they came to be known,

---

[83] Barsky, p.70
[84] Ibid
[85] "Those were the Days," *Rod and Custom*, June, 1954, p.48.

soon developed an aesthetic of their own. Rooted in the appearance of speed, custom culture also celebrated luxurious comfort, personalized styling, and high standards of workmanship. If these enthusiasts could not build a car that was fast on the lake beds and drag strips, then they could build one that looked and sounded fast – albeit with a few more amenities than their racier cousins within the movement. These hot rodders extended the hot rod ethos of sound craftsmanship into an aesthetic expressing the hot rod culture's philosophy of performance. Though not built to race on drag strips, these cars were most often mechanically sophisticated and fast. Additionally, these vehicles carried elements of luxury and novelty in exterior and interior augmentations or modification. Cars emphasizing individual style and personal craftsmanship, that were not specifically intended for competition or timed speed runs, were known as customs. Hot rodders focused on styling the exterior of their "custom" cars were the first to exert influence on automobile production.

The notion that consumers wanted a production car that was stylish and fast and technically sophisticated began influencing Detroit stylists, advertisers and promoters during the early 1950s.[86] As George Walker, styling consultant and later vice president of styling for Ford Motor Company, commented in 1951, " influence on tomorrows designs comes from hot rods and low silhouette cars like the California customs."[87] Clearly the activities of enthusiasts exerted some influence on the actions of automotive designers.

Cars influenced by the custom movement foreshadowed changes in regular Detroit production models. On the outside, such cars were stripped of chrome, lowered, and simplified even as engine displacement and horsepower increased. Popular

[86] Philip Lawrence, "Mercury and Lincoln introduce "Customized" Coupes," *Ford Field,* August 1950, p.15.
[87] Harry Cushing, "Detroit Looks at Hot Rods," *Hot Rod Magazine*, December, 1951, p.30.

operations such as “chopping,” “sectioning,” “channeling,” and “zeeing” were applied to production vehicles to lengthen their proportions and move them closer to the ground. These procedures often required complete disassembly of the vehicle and highly skilled metal craft. “Chopping” referred to removing a section of the vehicle’s roof support pillars to lower the top of the car. “Sectioning” described the practice of adding pie shaped sections of frame rail to the custom’s frame in order to move suspension mounting points higher. Higher suspension mounting points lowered the remainder of the car over the suspension. The third procedure, “Channeling,” was the most elaborate. It involved lowering the body of a vehicle on its supporting frame by building channels in the floorpans. Using these techniques, cars were lowered or given rake (lower nose and higher rear end) to mimic the silhouette of drag racers. The lengthened, low and often raked body of a hot rod helped maintain traction with weight transfer and stable aerodynamics at speed. The long, low, streamlined body of a customs often exaggerated this look. That is not to say that custom car builders did not care what was under the hood of their creations. As mentioned earlier, like all hot rodders, the customizers were devotees of enhanced horsepower. But their primary focus was on how their car looked. Though much attention was paid to the quality and power of the engine, the main focus was style.

By 1950, design trends in the auto industry reflected at least one automaker’s growing understanding of the selling power of the hot rod aesthetic. In an apparent play to cash in on the custom car vogue, the 1950 Mercury and Lincoln lines of cars together featured three “Customized” models.[88] *Ford Field,* a monthly trade magazine intended for dealers, described how California custom techniques were applied as new option packages in 1950. These versions were “marked by unusual customized interior and

[88] Ford Field ad copy described the custom options as two-tone paint, vinyl tops, two-tone instrument panels and extra chrome, and gold plated trim. All of these techniques were used by custom car builders.

exterior trim treatment" including extra chrome, extra plating and elaborate two-tone color schemes inside and out. The General Manager of Sales for Lincoln- Mercury commented that these models ". . . introduce a new style trend for the owner who seeks custom distinction for his personal car." Ford was quick to capitalize on the popular appeal of hot rodding by offering ornamental options just two years after postwar car production resumed in earnest.[89] That they introduced more cosmetic changes that were optional and required less tooling cost suggests that Ford was both unprepared to offer increased horsepower and unwilling to make serious mechanical changes without gauging the scale and scope of emerging popular fascination with automotive speed.

Like the custom variety of hot rodders, American automakers soon stressed lower, longer designs, novel use of chrome elements, and elaborate paint. The aesthetics of American automobile design drew heavily on the experimental creations of Custom car builders. These cars exaggerated or even predicted styling details from Detroit. As Eugene Jaderquist relates,

> For years, while autos were appearing on the streets with exposed headlights, the body craftsmen [customizers] patiently tucked, or 'frenched' them into the fender metal [and] the Cadillac method of bringing the exhaust pipes through the rear bumper is something that Barris (one of the more influential California Customizers) and friends have been digging for years. [90]

Hand-done bodywork sporting larger tailfins, exaggerated chrome elements, air scoops on the hood, or fenders evocative of the jet age were sculpted, and unique paint schemes were applied in shimmering metalflake. The interior of these cars received similar attention. Seats were covered in lavish upholstery in colors and patterns intended

---

[89] Lawrence, p.15, 49.
[90] Eugene Jaderquist, "Those Cool and Crazy Customs," *True's Automotive Yearbook*, 1954, p.73.

to complement the exterior color scheme and mechanical controls received plating, paint or polish.

Eventually the custom car aesthetic seemed to exert influence on the overall dimensions of production vehicles. Detroit approximated the long and low look cultivated in California. Rather than create a lower center of gravity by chopping, sectioning, or channeling, American automakers simply lengthened their models. One Ford advertisement proudly announced that the 1955 model was the "Longest, Lowest, Roomiest and Most Powerful Ever Built."[91] Even with the introduction of "compact" models in response to the recession of 1958, the average length of automobiles increased over seven inches between 1940 and 1960. In 1958, John Keats estimated in *The Insolent Chariots*, his lampoon of the 1950s American automotive obsession, that if one foot were cut off each car in New York City, an extra 80 miles of roadway would become available.[92]

In time, automakers further moved to cultivate and capitalize on these expectations by offering options that brought some of the hot rod speed aesthetic with a new car purchase. Horsepower enhancing features pioneered by hot rodders and later offered by manufacturers included multiple carburetors, dual exhaust, mechanical fuel injection, and supercharging. [93] Of dual exhaust, one writer in *Ford Field* commented, "When Cadillac recently adopted dual muffler equipment for use with its new improved V-8 engines, it only did what hundreds of builders of Ford "hot rods" have already done

---

[91] "The New Ford Fairlane" *Ford Field,* October 1954, p.18.
[92] Keats, John, *The Insolent Chariots,* (New York: Fawcett Books, 1959), p.146.
[93] Ford Field shows the adoption of the ARDUN overhead valve conversion as a dealer installed option, multiple carburetors offered as production options helped add performance to the Hudson Hornet as well as later Chrysler products. How-to articles describing the benefits of dual exhaust appeared in Hot Rod magazine as early as June 1951, see p. Fuel injection, commonplace among hot rodders, was offered as an option on Chevrolet Small block V8s beginning in 1957. Supercharging, well known among hot rodders, became a Ford option in 1958.

by providing an earlier escape for the burned gasses."[94] Though it would be years before Ford products were offered with dual exhausts, it was clear that automakers initially adopted this power enhancing configuration after it was pioneered and popularized by hot rodders. Similar circumstances surrounding the adoption of multiple carburetors, fuel injection, and supercharging suggest that the lessons learned by hot rodders were not lost on Detroit.

In 1953, high performance engineer Arkus Duntov suggested to his General Motors boss that market share could be enhanced by pursuing high performance focus for Chevrolet products. In a memo titled "Thoughts pertaining to youth, hot rodders, and Chevrolet" he stated that

> The Hot Rod movement and interest in things connected with hop-up and speed is still growing. As an indication, the publications devoted to hot rodding and hopping-up, of which some half dozen have a very large circulation and are distributed nationally, did not exist some six years ago. From cover to cover they are full of Fords. It is not surprising that the majority of hot rodders are eating, sleeping and dreaming modified Fords. They know Ford parts from stem to stern better than the Ford people themselves. A young man buying a magazine for the first time immediately becomes introduced to Ford. It is reasonable to assume that when hot rodders or hot rod-influenced persons buy transportation, they buy Fords. As they progress in age and income, they graduate from jalopies to second-hand Fords, then to new Fords. Should we consider that it would be desirable to make these youths Chevrolet-minded? I think that we are in a position to carry out a successful attempt. However, there are many factors against us:
>
> 1. Loyalty and experience with Ford

[94] *Ford Field*, December,1952, p.32.

2. Hop-up industry is geared to Ford
3. Law of numbers – thousands are and will be working on Fords for active competition
4. Appearance of Ford's overhead [valve] V8, now one year ahead of us.

Concerned about the timing of Ford keeping young hot-rodders attached to Ford's virtual monopoly over hot-rodding use, Duntov proposed to get involved indirectly in the race for the prestige of speed and horsepower. He suggested that

> The slide rule potential of our RPO V8 engine is extremely high, but to let things run their natural course would put us one year behind – and then not too many hot rodders would pick Chevrolet for development. One factor which can largely overcome this handicap would be the availability of ready-engineered parts for higher output.[95]

Clearly, influential decision makers in Detroit were familiar with the marketing potential of speed parts, as well as the popular cache associated with hot rod cars. Such awareness suggests that steadily increasing horsepower figures during the fifties and sixties can be attributed in part to the popularity of hot rodding. It also suggests that factories devoted attention to maximizing the horsepower potential of their engines long before there was much use in stock car racing. Even if hot rodders were not active participants in the so-called horsepower race, a period during the 1950s when competing makes of vehicles upped horsepower ratings each year, they helped create an atmosphere conducive to spiraling horsepower figures. Clear evidence of this increased demand for horsepower is suggested by the increasing power to weight ratio

[95] Zora Arkus Duntov, ‘‘Thoughts pertaining to youth, hot rodders, and Chevrolet,’’ *Hot Rod Magazine*, January, 1987, p.21.

of American cars. In the years between 1930 and 1958, the average weight of an American made automobile went up 60 percent. Over that same time period, the average horsepower increased 400 percent.[96] Between 1950 and 1963, the displacement of the largest Ford passenger car engines increased from 232 to 427 cubic inches. Between 1955 and 1963 the size of Chevrolet's largest engines increased from 255 to 427 cubic inches.[97] Chrysler products between 1953 and 1965 increased in maximum available engine size from 250 to 426 cubic inches.[98] Eventually the lure of horsepower would draw the automakers' racing teams onto the stock car tracks of America and speed conscious consumers into automotive showrooms, but more power meant new engines, engineering and retooling. Detroit addressed the custom style movement before expanding engine capacity and horsepower ratings.

Other features pioneered by hot rodders in general, and customizers in particular, soon appeared on mass production vehicles as optional equipment. Gadgets like electric door locks, electric trunk locks, and power windows appeared on customized cars before they became options on mass-produced sedans. Other more elaborate options, difficult to build without substantial capital and an engineering staff, were offered by automakers during the 1950s. Gadgetry such as power retractable convertibles, automatic headlight dippers, powered retractable hardtops, and power seats would all become optional throughout a wide price range of models allowing consumers to evoke the spirit of custom car craft through a transaction with their car dealers. Indeed, by 1958 the variety of options had reached staggering proportions. By figuring the number of

---

[96] *Automotive Industries*, March 1949, March 1958 annual statistical issues.
[97] *Automotive Industries*, March 1958, March 1965 annual statistical issues. It is useful to note that the engine size of 427 inches adopted by several rival vehicle manufacturers might be due in part to NASCAR rules adopted in 1962 that set the maximum engine size at 429 cubic inches. Within two years, Ford, Chevrolet, Chrysler, and Pontiac adopted maximum stock engine sizes of 427, 427, 426 and 421 cubic inches respectively. Sizing an engine slightly under the 429 maximum allows cylinder machining "out" to the maximum displacement.
[98] Ibid.

permutations in vehicles made possible through custom order at dealerships, one physicist determined that there were more possible combinations of automotive accessories, options, trim packages and paint schemes than atoms in the universe.[99] By marketing the aesthetic of rod and custom culture, American automakers commodified the craft and youthful creativity of hot rod culture. Consumers could buy a facsimile of a custom car by selecting from a palette of options to create, through transaction rather than the application of skill, the illusion of personalized originality.

Through the development of optional equipment the material culture of hot rodding could be easily approximated by Detroit's mass-produced sedans. Because of the flexibility of the culture's form and convention, and because of the variety of innovations made by hot rodders, there was ample opportunity for automakers to mimic speed and custom elements of car design within the boundaries of profitable production. The flexibility of the hot rod form, and the creativity of hot rodders meant that no clear definition of a hot rod existed.[100] Such ambiguity was due in part to the divergence of hot rod culture between those enthusiasts primarily interested in horsepower and the customizers, and in part to the rebellious nature of the movement. As with automotive styling itself, the dynamic between innovation, acceptance and obsolescence in the world of hot rodding functioned at rapid rate. Among horsepower hot rodders, the best means of achieving top speed was an issue open to varied interpretation. Some dragsters were built on a massive scale with multiple engines or one giant engine, while others were more lightweight and powered by only one engine. Among customizers the exact conventions of cool were likewise, constantly in flux.

The shifting aesthetic of custom hot rodders was continually mimicked by corporate stylists. Michael Lamm describes how hot rodders and Detroit alternately

---

[99] David Gartman, *Auto Opium*, (New York: Routledge, 1994), p.190.
[100] Moorhouse, p.15-17

added and removed chrome from production cars in adherence to prevailing aesthetic.[101] A Lamm writes, “Evidence of the impact of kustoms [sic] can be seen in such items as the tunneled headlamps on the 1952 Mercury, the dechroming of the 1954 Pontiac Parisienne Motorama show car and the entire 1955 Thunderbird, which was essentially a lowered, sectioned, two-place version of a full-sized 1955 Ford convertible.”[102] As soon as hot rodding began removing chrome from body styles, Detroit followed suit. When chrome elements then disappeared from production designs, it became “cool” for rodders to add chrome. Continued cycles of variation and emulation naturally kept the detailed definition of what constituted a hot rod very fluid. This flexibility allowed elements of the hot rod ethos and aesthetic to be appropriated when convenient by designers, engineers and advertising agencies.

Though the emphasis on the aesthetic dimension of performance grew rapidly throughout the 1950s, other hot rodders remained true to the experimental car builder logic and craft. While attentive to the appearance of their machines, this strain of hot rodder remained focused on the exploration and application of the horsepower potential of their cars. These enthusiasts formed the basis for the development of organized drag racing and top speed runs.[103] Other elements within the sub-culture of enthusiasts were more interested in sculpting an original, more comfortable, though also mechanically well “sorted out,” vehicle. The underlying similarity across all hot rodders was the assumption that mass-produced Detroit “iron” could be improved and that experimenting with machines was fun. Among the culture of hot rodding, speed zealots and customizers shared an aesthetic of mechanical ingenuity, carefully executed bodywork, and highly

---

[101] Michael Lamm and Dave Holls, *A Century of Automotive Style: 100 years of American Car Design*, (Stockton: Lamm-Morada Publishing Company, Inc, 1996), p. 146

[102] Ibid. The spelling Kustoms is occasionally used to define what was known in the 50s as the Custom car movement.

[103] Robert C. Post, *High Performance: The Culture and Technology of Drag Racing 1950-1990,* (Baltimore: Johns Hopkins University Press, 1994), p.10-12.

developed craftsmanship. Crucially, a general lack of applied experience with cars meant that the subtleties of craftsmanship and original design, so valued among hot rodders, were lost on the general public. As such, the external look of custom cars, and crude indicators of performance like “horsepower,” became the modes of association preferred by most Americans.

Most significantly for the purposes of this study, the technical and aesthetic products of hot rod culture were publicized widely and influenced new car production in Detroit. The subsequent impact on American car culture (and car marketing) was well understood by mid decade. In a 1954 article, one anthropologist familiar with hot rod culture suggested that,

> since the late 1920s, when building “hot rods” first became popular, there has been a steady expansion of this activity until, interest in and work on hot rods seems, in this area, a part of growing up for an increasingly large number of youths . . . experimentation in this field by thousands of young men has had a far-reaching effect on the entire automobile industry, not only resulting in the manufacture of countless special parts for the home car builders, but influencing basic automotive design. [104]

American automakers were able to hijack the fascination with speed and speedy styling built by hot rod enthusiasts by building and racing cars of their own that came to epitomize speed and style. Manufacturers pushed their styling innovations by producing experimental theme cars. Cars with exotic bodywork and elaborate mechanical systems like GM’s turbine engined “Firebird XP-21,” Ford’s “FX-Atmos,” and the Packard “Panther” were exhibited to demonstrate the creativity and ingenuity of different

[104] Don Mansell and Joseph Hall, ‘‘Hot Rod Terms in the Pasadena Area,’’ *American Speech,* XXIX (May, 1954), p.89.

manufacturers. [105] These design exercises and the car shows they filled found ready acceptance among American automotive culture through dealer publicity and detailed coverage in automotive magazines. Yet these "cars of the future," as they were often described, were mainly design exercises. While some of the aesthetic detail these vehicles possessed might find their way onto production cars, they were not themselves capable of demonstrating performance. Put another way, "cars of the future" were analogous to customizers - more about theatrical performance and less about physical performance.

The organization of NASCAR stock car racing and explosive growth of all forms of production-based racing in the 1950s introduced other opportunities to exhibit the speed potential of a production car to the buying public. Beginning in the mid 1950s automakers employed stock car racing to advertise actual speed. As one Chevrolet advertisement put it, "Engine and performance claims don't count in this league. Here you've either got it or you haven't."[106]

Though hot rodders defined how a fast, cool American car should look and perform long before stock car racing emerged into national prominence, stock car racing would ultimately carry American automakers message to the public. Races between ostensibly "stock" cars were a reliable and inexpensive way for manufacturers to build a speed reputation of their own. Participating in a "strictly stock"[107] series was the ideal means to prove the speed potential of their cars. For example, Hudson initiated manufacturer participation in stock car racing in 1951 by introducing special speed options for their "Hornet" engine and sponsoring two teams under the technical direction

---

[105] Mandel, p.276-279

[106] Robert C. Ackerson, *Chevrolet High Performance,* (Iola, WI: Krause Publications, Inc., 1994), p.36.

[107] This term was initially coined by the AAA contest board to describe cars eligible for performance runs conducted under their sanction. NASCAR adopted this term to describe the sort of cars competing under its sanction. As we shall see, they became somewhat less that strictly stock.

of Marshall Teague and Smokey Yunick.[108] In 1954, Oldsmobile followed suit and began offering optional final drive gear ratios intended for racing.[109] Pontiac began introducing special performance parts, cataloged and sold as "Regular Production Option" (RPO) through dealerships.[110] The involvement of major manufacturers would continue and in some cases expand through the 1960s.

In several instances, major factory race teams were formed. By 1955, three large automakers were sponsoring factory stock car racing teams. Carl Kiekhaefer campaigned Chrysler 300s with heavy factory support to gain publicity for his "Mercury" outboard engine company.[111] In 1955, Chevrolet created a racing team under the direction of Mauri Rose using experienced stock car mechanic Smokey Yunick. Also in 1955, under the direction of Pete DePaolo, Ford set up a racing division in Long Beach, California. When Yunick left for Ford in 1957, Chevrolet opened its own stock car racing shop called the Southeastern Development Company (SEDCO) that operated out of a major dealership in Atlanta.[112]

Despite a ban on racing activity mutually agreed upon by Automobile Manufacturers Association members in 1957, support of racing continued. Ford, Chevrolet, Chrysler and Pontiac all continued to offer race-grade equipment under the

---

[108] Yunick, p.37-40.
[109] Craft, John, *The Anatomy and Development of the Stock Car*, (Osceola, WI: MBI, 1993), p.13. Different gear ratios offer the racer the opportunity to adjust the speed of the wheels to engine speed. Typically, on shorter tracks, a higher ration is desireable as it increased effective torque (and thus acceleration) at the wheel.
[110] In my 2001 inventory of Smokey Yunick's Shop, Pontiac ratios of 2.53:1, 2.56:1, 2.62:1, 2.78:1, 2.81:1, 3.1:1, 3.23:1, 3.42:1, 3.54:1, 3.62:1, 3.64:1, and 4.30:1 were still on hand. Offering different gear ratios was primarily an investment in paperwork and materials handling. For example, myriad gear ratios existed for the Dana corporation "44" series gear set common to many cars (Hudson, Studebaker, GM products). Automakers probably also experimented with varying ratios in varying models. As such, the expense for manufacturers was not in developing tooling to make specific ratios, but rather in cataloging and handling the parts inventory. These parts existed for use in trucks, but offering them as an option was necessary to pass muster as a production part for the stock car rule-makers.
[111] Completely unrelated to the Ford Motor Company "Mercury" line of automobiles.
[112] Yunick, p.284

RPO monikers of “Super Duty,” “Export” or “Police duty”. Among this factory produced racing equipment were performance chassis parts, high output engine components, and exotica such as stainless exhaust systems and multiple carburetor induction systems.[113] Continued unsanctioned factory support of stock car racing suggests the recognized value of motor sport advertising. Though automakers decreased development of technologies useful for production-based oval racing, the expertise and factory speed options pioneered there would continue to race in stock car circuits for the following three decades.[114]

The rod and custom aesthetic influenced the emergence of stock car racing in two ways. First, the technical experience of the hot rodders would apply to the efforts of stock car builders from the beginning. Evidence of the diffusion of techniques can be seen in the methods used by stock car mechanics to skirt the published rules. They applied the same techniques common among rodders and customizers intended to create the illusion of streamlined speed, as explained in magazines like *Hot Rod, Car Craft* and *Rod and Custom.* Early stock car racecars were modified yet maintained the illusion of stock. Though stockers racing in both AAA and NASCAR were more constrained by rules than hot rodders, the “box” they worked within to build extra horsepower utilized the same production components as the basis for experimentation. Inside the engine bay, there is clear evidence that the West Coast hot rodders provided components and expertise for the emerging stock car series. Retired stock car mechanics from the 1950s almost to a man refer to the “speed parts houses” on the

[113] Yunick, p. 274-277
[114] Paul VanValkenburgh, *Chevrolet Racing? Fifteen Years of Raucous Silence*, (Warrendale, PA: Society of Automotive Engineers, 2000), p.14.

west coast as a source of inspiration, technical guidance and parts for their racing exploits.[115]

> Technical knowledge borrowed from the hot rodders was not confined to the engine bay. When stock car rules mandated chassis reinforcement, or when racing experimentation moved into the realm of body alterations, stockers used techniques pioneered by the hot rod and custom movement to lower and strengthen their cars. A later example of body alteration, the Ford Torino Talladega, illustrates well the application of techniques such as sectioning and chopping applied to stock car racing. When building the prototypical Torino Talladega, Ralph Moody, who ran a body shop in Massachusetts before coming south to race stockers, sectioned a stock Torino to create a sloped front nose, a lower center of gravity, and a smaller frontal area. This car became the prototype for the limited production Ford Torino Talladega of 1968.

Rod and custom techniques intended to convey neatness of craftsmanship and design were also utilized by stock car mechanics to hide alterations from inspectors. Artifacts recovered from Smokey Yunick's racecar shop reveal how "filling" techniques were used to "move" holes back into stock positions.[116] The original holes of a bumper mounting bracket, after being "moved" through an illegal alteration, were welded up, and a new hole in the stock location was drilled. For inspectors using the hole for reference it remained in the same place when in fact the overall dimensions of the bumper bracket (and therefore the position of the bumper) had been moved.[117]

Some of the technical influence on stock car technique was more direct. Racers along the east coast competing in the modified ranks that fed talent into NASCAR Grand

---

[115] Sammy Packard interview, Smokey Yunick interview, "Speed and Spirit: NASCAR in America," Smithsonian Institution, NMAH, Washington, D.C., 2002.
[116] Artifacts in the possession of the author.
[117] Moving the bumper of a car could offer aerodynamic advantage over stock placement.

National racing depended on the expertise of hot rodders for cars. As one 1947 *Saturday Evening Post* article explained, "The package of chrome-plated dynamite you see there was never born on a Ford assembly line. It was dreamed up by Mr. Ed Schenck, the West Coast hot-rod wizard…."[118] This dependence on supplies and skill from the West Coast did not end once NASCAR became established. As Bobby Allison describes, technology from the hot rodders remained necessary for top performance in the modified ranks into the early 1960s. Allsion describes his first opportunity to buy genuine California speed parts from a east coast supplier commenting that

> I had seen this advertisement and I knew that Honest Charlie Speed Shop had all these goodies that any racer would have to be interested in and I had all this [prize] money. So we went there and I went to Honest Charlie's and I bought some new parts for my racecar. Bought an aluminum flywheel, which at the time I even had a steel flywheel on the car. Bought aluminum fly wheel and aluminum hubs and some things and took the car apart and did all this remodeling and headed back to Dixie Speedway for Friday night at Birmingham.[119]

Though Allison would eventually graduate to the ranks of strictly stock where hot rod parts were illegal, he was indebted to the hot rod culture of the west coast.

Another, fundamentally more important consequence of hot rodding was that it helped change the way Americans thought about their cars. Either through phenomenal horsepower or custom-style bodywork, Detroit's cars and their advertising copy written to address the 1950s auto market were meant to convey the potential of speed. The efforts of hot rodders and the subsequent focus of automobile advertisers suggested that American car owners could have speed

[118] Frank L. Harvey, "Thunderbolts With Fenders," *Saturday Evening Post*, August 7, 1947, p.21.
[119] Bobby Allison interview "Speed and Spirit: NASCAR in America," Smithsonian Institution, NMAH, Washington, D.C., 2002, 1:11:34.

and luxury at the same time. This illusion sold cars. Consumers didn't seem to mind that it was illegal everywhere to find out if your car could really reach the 140 MPH printed on the speedometer, or that tailfins actually added tremendous instability at high speeds, or that even if you did push the limits of the overgrown engine in your fast- looking car, the brakes and suspension could scarcely handle it. The era of hot rodding whetted the public appetite for speed, and romanticized the status, youthful appeal and speed potential of a powerful car.

Beyond appealing to the youthful hubris associated with hot rodding, the hot rodding ethos, as embodied in automakers' products, suggested that power and control were possible through technology, that power was morally good. This idea resonated with growing American dependence on technology for security during the cold war years.[120] In an article entitled "Death on Wheels" defending increased emphasis on horsepower, performance is cast as a safety issue. "In recent months you may have read about the so-called "horsepower race" in the automobile industry. This race is a myth" read one magazine article:

> The purpose of the manufacturers has not been to have increase horsepower for the sake of speed . . . it is to improve performance, enhance operating economy, and to provide the car-owner with an additional safety factor . . . added horsepower under the hood gives the motorist a precious 'reserve of power' for those breath-taking driving situations in which a momentary flash of speed may save his life and that of his passengers.[121]

This defense of increasing speed suggests that empowering the driver, offering the consumer greater horsepower and enhanced "performance" would provide more

[120] Nye p.252
[121] "Death on Wheels," *Ford Field*, September, 1955, p.15

rather than less safety. Despite contradicting earlier statements in this article that suggest driver error, rather than a lack of horsepower was the root cause of most accidents, the logic of "power equals safety" prevailed throughout automotive literature. Though the same article reports that "85 per cent of accidents were cause by "momentary distractions" of the driver" and that a "Pennsylvania Turnpike study attributed 37 per cent of crashes to recklessness or incompetence on the part of the driver,"[122] the idea that more power might just get a careless driver into trouble that much faster is not broached. Some advertisements combined the contradictory claims of safety, direct association with racing performance, and high speed driving for recreation. To answer critics of skyrocketing horsepower figures, automakers construed extra power as a safety consideration rather than a bid to build high-performance prestige.

In an attempt to be all things to all consumers, Chevrolet offered to provide speed, superior handling, and safety, all with increased horsepower. "The records prove that in NASCAR Short Track events '55 Chevrolets have rolled up almost twice as many points as their nearest competitior," one advertisement read, "Because the '55 Chevrolet is a lot more than just a plain passenger car!" The advertisement continued to suggest that for the consumer, enhanced performance can "mean more fun behind the wheel – *and safer, surer control wherever you drive."*[123] Despite possible contradictions between safety and speed, automakers continued suggesting that power equals safety throughout the 1950s and 1960s. Despite a recession in 1958, and concurrent introduction of compact cars like the Ford Falcon, Chevy II, Pontiac Tempest, and Chevrolet Corvair, consumers continued to respond to this suggestion and the example set by hot rodders and stock car racers by purchasing increasingly powerful cars.

---

[122] Ibid.
[123] "Chevrolet's Taking Competition to the Cleaners," *Hot Rod Magazine*, October 1955, p.25

In a cold war society preoccupied with the security offered by potential force, the American car was a symbol of personal power. Stock car racing simply offered a great place to show how powerful a production car could appear to be. Once the chic of speed and speedy appearance had been adopted by mass producers, the expectation for longer, lower, more powerful cars created machines suited (after mechanical reinforcement) for the spectacle of stock car racing. Big engines, big cars and the big egos of white Southern men combined on stock car tracks throughout the nation to display the capacities of Detroit's wares.

But why were newly established national stock car racing series chosen for advertising cultivation over the established events begun on the west coast? Ironically, the hot rodders helped build the American fascination with speedy cars, but stock car racers from a very different part of the country ultimately were used to advertise Detroit's speed offerings. It seems evident that the manufacturers did not choose hot rodders to advertise their products because their creations seldom closely resembled production cars. Indeed, hot rod efforts were a reaction to the quality and form of the automaker's status quo, a rolling critique rendered in steel, fiberglass, aluminum and iron. As University of Chicago graduate student Gene Balsey reported, "the hot rodder and his circle are highly articulate in their objections to the Detroit Product as an automobile, and the reason is that they have little respect for the Detroit solution of a problem in transportation, engineering and esthetics."[124] Yet though the logic of hot rodding and customizing was the antithesis to mass production, the goals of speed and luxury that hot rodders pursued were ideally suited to mass consumption. Though the enthusiasts who were engaged in the rod and custom movement built the enthusiasm sold by American automakers, they were not enlisted by those manufacturers to address the market they helped create.

[124] Balsey, pp.353-358,

Another reason that Detroit chose to support stock car racing was that these racers were willing to race while maintaining the illusion that the cars they used were truly mass production. NASCAR built adjustments and substitutions for production components into their rules to keep more cars competitive, all the while retaining the phrase that cars had to "maintain stock appearance."[125] Theirs was the advertising illusion magnified through race engineering under the cloak of stock car designation. Conveniently, the spectacle of stock car racing involved little of the worship of technical novelty, rather the focus was on competition. This suited manufacturers who advertised their racing sedans as "stock" without confessing that much of the running gear came from trucks.[126]

It also seems likely that the requirements of stock car racing better suited the design and capabilities of production vehicles. Stress on driveline components and the pressure to minimize weight are much less during a long event on an oval track than during a drag race. Unlike drag racing where the straight-line sprint places massive initial stress on engine and driveline components, the more fluid, circular action of stock car racing placed more gradual demand on vehicle components. Also, 100 or 500 hundred miles of a stock car event might better advertise the capacities of a vehicle than a quarter mile burst of speed.

Racing on an oval provided immediate association with the "golden age" of American motor sport and the successful championship series that fed into the famed Indy 500. The oval was an established method of staging races for entertainment. With

---

[125] See NASCAR rule books, 1951 through 1979

[126] Stockers used wheel hubs from 1/2 ton trucks beginning with "modified" racing. Truck hubs, spindles and brakes were popular because of the bigger brake drum and wide lug pattern. Ralph Moody adapted the "full floater" hub from a 3/4 ton Ford for use on rear axles in 1956. Holman and Moody later (c. 1963) reproduced these hubs and similar hubs for the front. Hubs of these dimensions are still in use today. Since 1965, 1963 Chevrolet pickup trailing arms are used under the rear axle. The majority of rear axles since the early 1960's and virtually all since 1979 are Ford "9 inch."

the oval format, stock car racing also offered prolonged visceral appeal to fans. Racing on an oval offers the contesting spirit of a melee, rather than the controlled atmosphere of one-on-one drag racing. Rather than the science experiment feel of staging lights and photoelectric cell timing equipment, highly modified classes and brief displays of performance that drag racing offered, stock car racing was a battle royal held between production cars.

The application of mass production techniques to automobile manufacture altered the sporting landscape even as it helped spark massive demographic and cultural shifts in America. With the application of the American system and the moving assembly line, the automobile was accessible to the many. The same simplicity that lent itself to mass production made early stock vehicles suitable for the tinkering automotive enthusiast. The enthusiasts doing the tinkering helped build the hot rod and customized car phenomena into national prominence following the Second World War. Familiarity with hot rodding helped build the expectations of consumers for new models from Detroit. The perception that a powerful automobile meant comfort, safety, and prestige found ample patronage across the nation. During this phase, the notion that a vehicle could be simultaneously mass-produced and operated primarily as a utilitarian appliance yet also suitable for racing competition ultimately eclipsed reason. Despite how ideally suited this assertion was to record vehicle sales the idea was not wholly formed in the advertising departments of American automakers.

Particularly in the economically emergent South, this linkage of mass production and enthusiasm for speed would create a fertile atmosphere for the expansion and acceptance of stock car racing. If the national enthusiasm for hot rodding did not translate into a nation-wide fan following during the first decade of NASCAR, the association between performance and advertising realized by automakers did influence the development of stock car racing. Ford, Chrysler, Chevrolet, Hudson, and Pontiac all

used reference to performance in their advertisements during the 1950s. Likewise, all of these automakers actively supported stock car competition during the same time period.

It seems unlikely that stock car racing would have flourished without linkage to the marketing efforts of factories selling performance. It is clear that the story of factory involvement, both clandestine and overt, heavily shaped the practice and hardware of stock car racing during its first 30 years. By helping to develop Detroit's new aesthetic that conjoined horsepower and production-custom styling, hot rod culture helped focus the efforts of automotive advertisers on the illusion of strictly stock performance.

CHAPTER 3

ESTABLISHMENT AND SOUTHERN RETRENCHMENT

On December 14, 1947, a group of drivers, mechanics, and racing promoters gathered in the Ebony Lounge of the Streamline Hotel in Daytona Beach, Florida to discuss the future of production-based automobile racing in the United States. Through advertisements placed in various motor sport publications, they were invited by racing promoter Bill France to try and sort out a system of rules for a new production-based championship series.[127] The meeting was an informal affair from the beginning. Invitations billed it as both business meeting and winter vacation spree. Because most of the attendees knew each other through racing competition or joint promotional ventures, it was as much a social event as a business meeting. Among the community of racers such roles often overlapped, so the idea of gathering to discuss racing in a resort town combined business and pleasure in the same way as racing.[128] Throughout the four-day meeting, a free-flowing keg of beer kept everyone in friendly spirits and open to new ideas.[129] The result of this meeting was the formation of a businesslike sanctioning agency for professional production-based racing in the United States. How this organization was organized and how it managed technological change, differentiated the business of sanctioning races from existing racing authorities, and facilitated the creation of symbolic production cars for competitive spectacle is the core of the NASCAR story.

As a promoter operating mainly in the Southeastern United States, and mainly among the lower echelon of motor sport, France called the meeting to standardize and regulate a new championship series among racers competing with production-based

---

[127] Bill France and Bloys Britt, *The Racing Flag: NASCAR – The Story of Grand National Racing*, (New York: Pocket Books, 1965), p.16.
[128] Eugene Jaderquist, "NASCAR Primer," *Motor Trend*, May 1952, p.19.
[129] Sammy Packard interview, "Speed and Spirit: NASCAR in America," Smithsonian Transportation Collection, NMAH, Washington, DC.

vehicles. For years, production-based motor sport was organized into smaller local championship series. With the close of the Second World War these pockets of activity boomed. Apparently France recognized that races between production-based cars were capable of satisfying crowds of eager fans. That there was great entertainment potential in staging races between production-based cars was lost on established sanctioning bodies like the AAA. Indeed, France had several promotional ventures in his portfolio that demonstrated the potential of stock car racing.[130] Before the war he had organized two successful racing events on the sands of Daytona. Since hostilities ceased, he had successfully promoted events across the South in his own National Championship Stock Car Circuit (NCSCC).[131] Like others associated with promoting stock car racing, France sought the legitimacy and potential profits offered through racing on a national scale. The meeting he called would culminate with the creation of NASCAR, the National Association for Stock Car Automobile Racing.

At the time of the meeting and indeed since the dawn of motor sport in the United States, there was another, larger sanctioning body to contend with. In 1947, the Contest Board of the American Automobile Association (AAA) was, like most institutions, returning to normalcy after the recent World War. In the wake of hostilities, the racing business was booming. Though the AAA was aware of the tremendous demand for automobile racing, it was unwilling to sanction events using production-based equipment. Indeed, a bulletin issued by the AAA Contest Board on January 7, 1948 acknowledged the dearth of racecars to meet the needs of competitors and thus the expectations of fans. Yet even though this communiqué relates that, "Based on information given the Board by those actively participating in automobile racing from all sections of the country, it was quite evident that there was a shortage of racing

[130] France and Britt, p.15, "Stock Car Circuit," *Speed Age*, October, 1947, p.34.
[131] Greg Fielden, *Forty Years of Stock Car Racing*, (Surfside Beach, SC: Galfield Press, 1992), Vol.1, p.5.

equipment during the past season," there was no move to accept production-based chassis for speedway competition.[132] Indeed the AAA seemed little interested in letting the so-called "jalopies" occupy even the margins of motor sport.

The same bulletin also stated that "There is no change in the policy of the Board with respect to the sanction and supervision of stock car racing events." The AAA emphasized that it would

> Only issue our sanction for stock car racing events which were limited to cars of strictly stock status. We will not issue sanctions for the 'so-called' stock car races which permit all types of modifications of the engine and chassis. It is our feeling that these races contribute in no way whatsoever to the benefit of the motoring public.[133]

Though they would permit the use of modified production engines in competition, these engines had to be installed in what they considered "real racecars," built on special chassis. By insisting on sanctioning only races using purpose-built cars, the AAA Contest Board rejected a vast group of dedicated and capable racers working the smaller tracks across the nation. For entrepreneur Bill France, their refusal to deal with any racing that smacked of mass-production was a stroke of tremendous good fortune. Organizing these racers into a national series was left to the men gathered in the Streamline Motel or others like them.

With his opening remarks on the first day of the meeting in 1947, France outlined his perspective on how production-based automobile racing could become a respectable and profitable sport for drivers, mechanics, car owners, and racing promoters alike. He referred to a "golden age" of stock car racing when factories would sponsor racing teams

---

[132] "AAA Contest Board Bulletin," January 7, 1948, AAA Correspondence, Smithsonian Institution Transportation Collection, NMAH, Washington, DC.
[133] Ibid.

to travel around the nation promoting their brand.[134] He spent a considerable amount of time describing the state of chaos that stock car racing had descended into before the Second World War. During this time, the racing business was, at best, a gambit. According to France, who was a race promoter before 1941, drivers seldom knew if prizes would be paid, promoters seldom knew if drivers would show for a race, and there were no consistent procedural rules or technical specifications.[135] On all but the highest levels it was a sport created and carried out largely on an *ad-hoc* basis.[136]

After offering a brief biography on his qualifications as a racer and experience as a promoter, France turned to the heart of his opening comments: his plans for managing the creation of a national production-based racing series. He began by describing the advantages offered by creating a national championship series. He argued that racers would be free to travel around and compete at different venues if they could rely on a uniform set of rules to prevent disparity between race vehicles. The criteria governing vehicle specifications had evolved differently in different regions. Lack of uniformity between racecars from different regions kept racing local and small-time. What racers and promoters didn't want was technological disparity to ruin competition, but numerous local sets of rules stifled competition. While these differences between rules might have been inconsequential, the perception of technological inequity was enough to keep racers from traveling to a race where they stood less chance of winning or needed to invest in extra equipment to meet different specifications. To illustrate this point, France asserted that a fast driver in an average car would always lose to an average driver in a

---

[134] Russ Catlin, "History of AAA Championship Racing," *Speed Age*, December 1954, p.40-41. It should be noted that these teams were supported by factories, but they seldom campaigned equipment available to the general public. Largely engineering and publicity exercises for the parent company.
[135] "Minutes of the First Meeting," ISC Archives, Daytona Beach, Florida, p.2.
[136] Ibid., see also Humpy Wheeler interview, "Speed and Spirit"

"hot" car.[137] The idea was to produce a formula describing the race vehicles that permitted the maximum number of competitors to enter machines of near equal specification.

France then went on to describe the economics of production-based racing in greater detail. It was common knowledge, he asserted, that certain specific production components were more desirable for racing activity. These items typically were lighter, stronger or offered performance suited to the demands of the track. Because of the advantage some of these parts offered, they commanded higher prices than other production components. Indeed, some mass-produced parts that were desirable for competition cost more than aftermarket hot-rod parts.[138] As France framed it, the problem was not so much about determining what was a production part or not, but rather consistency in permitting various technologies in competition. In short, it was a problem of maintaining standards that prevented technology from providing an obvious advantage and accounting entirely for victory. As Bill France described it, this was neither good for competitors nor promoters. He suggested that it would be better to have more cars racing than have every car meet some ideal of stock. As France saw it, the idea behind having production-based racecars was not so much to test the products of Detroit's assembly lines, but rather to create the opportunity for as many people to race as possible. Cars should be allowed to use non-production components so long as they were inexpensive and readily available.

---

[137] "Minutes of the First Meeting," p.2

[138] As an example he described how the cost of racing had increased because of the higher horsepower possible using the Ford "81AS"V8 production cylinder head. In some areas the cost of these heads, when you could find them, had risen to 75 dollars each. This was far above the cost of better-performing aftermarket cylinder heads from a speed parts supplier. These engine parts demanded such a premium not because they were superior to aftermarket equipment, but because they were a production part. Despite offering less potential horsepower gain than an aftermarket cylinder head, and costing more because of scarcity, they continued to be a common component described in the rules of some stock car promoters.

Based more on keeping racing machines economical than on the reality of what came off production lines, this stance had tremendous long-term ramifications. Once established, this fundamental principle would permit NASCAR, over the course of the next thirty years, to develop an inexpensive "stock" race vehicle appropriate to the task of resembling a true production car while racing at very high speeds. By borrowing components freely from the production line and the aftermarket while stemming investment in costly novelty, France was opening a crucial area for interpretation of the rules. Ultimately this practice removed ultimate control over the technology of competition from the automakers and secured management of the racing technology for NASCAR.

Beyond controlling the NASCAR stock car championship, this stance also had ramifications for the public face of motor sport. France's theory of regulation suggested that serving the public need as a race organizer was more about providing entertainment than providing a test or exhibition of genuine production cars. This attitude set NASCAR apart from the AAA, whose rulebook indicated that "the Contest Board … found opportunity to render a service greater than its founder envisioned. Under its supervision automobiles and their engineering were tried in races, tours, hill climbs and other tests, and this great laboratory process helped produce the great cars we have today."[139] Though NASCAR would use the rhetoric of "the track as a laboratory," its rules made clear that any testing function of competition was subordinate to providing entertaining racing.

The scarcity and subsequent high cost of desirable production components was not the only justification for suggesting that NASCAR develop complete control over the technology of competition. As France explained, sometimes what was stock, and what

[139] American Automobile Association Contest Board, *AAA Official Competition Rules*, (Washington, DC: American Automobile Association, 1953), p.13.

was not was an issue provoking fierce contention. He described how production vehicles were seldom so standardized that what passed as a “stock” racecar was known, even to factory representatives. In an example, France related an argument that followed the Daytona Beach race he promoted in 1936. In this instance, following the race one driver protested another’s valve springs because they had daubs of green paint. The disgruntled driver argued that they were a “cheater” part because the valve springs in his car carried splotches of orange paint.[140] Though these paint marks were likely just assembly aids referencing spring height or designating production batches, they could be construed to indicate a non-production engine part. France points out that such conflicts, even where they did not affect the outcome of the race, often left competitors unhappy and cast doubt upon the abilities or allegiances of the officiating promoters. France pointed out that in the absence of a uniform set of rules to govern all production based racing, these sorts of conflicts and resulting resentment would continue to be a problem. By investing authority in a single, national sanctioning agency, such conflicts might be avoided, or at least responsibility for solving them shifted. In this instance it seemed better to leave rule enforcement up to an impartial sanctioning body, whose stake in the outcome seemed less immediate than that of the promoter. Deciding such disagreements could have long-term negative implications for a promoter that wanted to continue to attract the best driving talent to his races.

Keeping technological advantage to a minimum had benefits beyond satisfying competitors. That institution or individual who controlled the technical specifications for competition vehicles would carry much responsibility and enjoy significant power over the production based racing community. France asked, “which one of you can tell, for certain, what a stock car is? I doubt anyone in this room can. I doubt anyone from Detroit

[140] Minutes of First Meeting, p.3.

can."[141] He suggested that perceived or real technological advantage could be controlled, but only through deliberate and somewhat arbitrary distinctions between what sort of "production" cars and parts would be eligible and which would not. To effectively control the technology of competition, a sanctioning body should have the final say over what automotive makes or components were permissible regardless of who made them. It seems clear from his stated perspective that Bill France understood that close competition was more accessible and important to race fans that the accuracy of the technological composition of the racecars. What is absent from his remarks, but proved true in time, was that whoever maintained control over the details of technology controlled the destiny or production-based racing in the United States.

France conceived of production-based racing as a contest to get fierce racing competition before the paying public as much as a struggle between vehicle manufacturers. The AAA in sanctioning the strictly stock Elgin Cup races of 1934 and 1935 had made the mistake of trusting the factories to supply actual production vehicles for competition.[142] Trusting the authority of the automakers proved a grave error as both times factory built Ford racecars, posing as stock vehicles, trounced their respective fields of challengers. Though France was willing to follow factory parts literature when considering a part legal for competition in his NASCAR sanctioned races, he would never take factory publications as the last word. Furthermore, when one make of car was a little too successful, NASCAR would take steps, cautiously during the early years and later as bold as banning certain equipment, to see that the rest of the competition caught up. His willingness to disregard what part was actually stock for a particular vehicle, and assume responsibility for describing the specifications of vehicles that could race, was crucial to the ultimate success of NASCAR.

---

[141] Ibid p.4.
[142] "Elgin Road Race," Henry Ford Museum and Archives, Dearborn, Michigan.

Assumption of this responsibility allowed racers from a variety of smaller series to become integrated into one “league” under the effective control of one agency. Determination of what was “stock” allowed NASCAR to regularize racing as entertainment. Control over the technological aspects of competition permitted the organized, regular presentation of races with a near-guarantee of close competition. Finally, being able to define “stock” permitted NASCAR racing to operate under the guise of genuine production origin even though the cars were heavily modified. The ability to maintain association with production-based cars, even if symbolic, brought an air of respectability to the sport.

Later in his Sunday speech at the Streamline, France lobbied for a national championship. The creating of a unifying points system that crowned a champion at year’s end gave stock car racing respectability on par with other, more established forms of motor sport. A national championship was the crowning level of organization intended to bring respectability, secure regular participation from drivers and regular events from promoters, and integrate differing competition groups into a unified whole.

Borrowing organizational and promotional philosophy from the AAA, France described the possible benefits of a two-tiered racing series. Each region of local, grass roots, production-based competition could play host to traveling “first tier” drivers from across the country. As a promotional hook, local talent could be pitted against traveling professional drivers. For traveling national competitors, a national championship points system, and a fat championship purse, would encourage consistent participation. Consistent local competition could be similarly encouraged through regional championship funds. Because both level of championship would be funded on a percentage basis from prize money offerings, and prize money was pulled from gate receipts, funding the championship would cost no money up front. Promoters would pay

fifty dollars per $1000 of prize money into the regional championship fund, and 100 dollars for each thousand into the national championship fund.[143]

Maintaining a multi-tier system was a clever and essential feature of NASCAR's early years. By offering racing on many levels, NASCAR could lock up the best drivers and tracks across the nation and harvest substantial profits from local, grass-roots racing. As one journalist wrote, "The largest part of the racing dates are devoted not to stock cars as the name of the sanctioning body might imply, but to modified and sportsmen events. These are hard-top, souped-up jobs with plenty of speed and power but not much beauty."[144] As this statement suggests, NASCAR did reap tremendous benefit from sanctioning the lower echelons of motor sport. For every year of its operation, NASCAR sanctioned far more modified events than what later became known as Grand National ("major-league" strictly stock) events. In 1950, for example, races at the top level of production-based competition represented just over 28 percent of NASCAR's sanctioning activity. By 1961, Grand National races at the top tier of stock car racing represented less that four percent of the events sanctioned by NASCAR.[145] Though NASCAR, the motor sport press, and the public always placed maximum emphasis on the exploits of stock car racers in the top echelon of competition, this level of racing rested on a vast network of competition using modified cars.

Early recognition of the profit potential in organizing stock car racing on all levels also offered important symbolic leverage to NASCAR. As one 1951 editorial suggests, NASCAR became the proponent of racing for the masses. *Speed Age* magazine reported that

---

[143] Typically there was a positive correlation between the amount of prize money and the attendance proceeds.
[144] Eugene Jaderquist, "NASCAR Primer," *Motor Trend*, May 1952, p.46.
[145] France and Britt, p.19. Of 1327 races sanctioned by NASCAR in 1961, 52 (or 3.92 percent) were Grand National events.

> One of the reasons NASCAR was formed was to give a home to the gentlemen who race modified cars. The AAA won't have them, considering such racing too commercial and too unimportant for national recognition. This makes it difficult for participants to get insurance covering themselves and spectators at events. It also leaves the unorganized drivers at the mercy of the occasional unscrupulous promoter one finds in the business. Under NASCAR's protection, insurance is available at good rates and the drivers are guaranteed purse money in advance.[146]

By offering stability and organization to eager racers and fans at lesser-known tracks across the nation, NASCAR positioned itself as champion of automobile racing for the common man.

NASCAR gained other advantages besides widespread popularity by sanctioning "racing that is open to everyone."[147] The "Modified" and "Sportsman" ranks of production-based racing helped train drivers, mechanics, and car owners to operate according to NASCAR's rules. "Dirt tracks and smaller local tracks hold the keys," suggested Bill France. "It is here that you see racing at its source," France continued. "Drivers must be able to maneuver corners with one competitor laying against a fender and another pushing on his rear bumper. At these small, local tracks, young drivers feed on the experience of veteran drivers and learn their techniques. It is on the dirt tracks, too, that sportsmanship and rules-of-the-road are taught."[148] The social subtleties of successful competitive behavior, creation of rivalries and friendships and the acceptance of NASCAR's administration of competition all accompanied experience in these "minor leagues" of production-based racing.

---

[146] "What Value Modified Stock Racing?" *Speed Age*, March 1951, p.50
[147] "NASCAR," *Speed Age*, May 1950, p.43
[148] France and Britt, p.19-20

By maintaining a reserve of possible racers ready to move up into the next level of racing, France and NASCAR could exert influence over promoters as well. Because race promotion had been such a risky business before the meeting that formed NASCAR, the businessmen involved seemed willing to accept constraints in exchange for the territorial security and race dates with assured fields of competitors that NASCAR could offer. In addition, through selectively granting sanction to events and enforcing existing territorial divisions between promoters, NASCAR could also improve the profitability of production-based racing. NASCAR avoided potentially costly scheduling conflicts by controlling the location and frequency of racing events from three "leagues" of competition.[149] Such centralized control greatly expanded the opportunities to race for everyone involved. With complete vertical organization setting standards and controlling schedules on all levels of production-based racing, there were chances to profit as a promoter or driver on different levels of financial association.

The only possible negative feature was that racers and promoters had to accept NASCAR's complete control. The lock on most of the racing talent also meant that other production-based promoters could not gather enough resources to seriously challenge NASCAR's authority. By agreeing to NASCAR's authority, promoters were essentially buying into a trust that facilitated the relationship between drivers and track owners. Racers were kept happy with frequent, guaranteed prize purses, and promoters were kept happy with assured participation from racers and promotional help from NASCAR. For the folks gathered at the Streamline, organizing production-based racing before too many entrepreneurial promoters ruined the sport was critical.[150] France's plan offered stability to a sport often plagued with uncertainty.

---

[149] NASCAR Newsletter, Volume, 1, No.1, November, 1, 1952, p.1.
[150] "Farewell to Midgets?" *Speed Age*, February, 1951, p.29.

Though France's plan to divide up racing territory and dates effectively established a *de-facto* trust that would ostensibly allow everyone to "be a success at their own project," it soon became clear that his project would take precedent.[151] Promoters could maintain and fortify the fiefdom of venues and events they already had, while as head of NASCAR, France built a nationally recognized first tier of competition. Though second and third tier events would clearly benefit from the success of the first, the potential for nation-wide expansion clearly made the first tier more lucrative.

To finish off his comments before the men gathered at the Streamline, France brought up issues of respectability. Stock car events would need to concentrate on cultivating respectability to become a credible and profitable national motor sport. Before World War Two, stock car events were often staged as "run what you brung" free-for-alls on "gravel pit" local tracks, or novelty shows before "main-event" contests between purpose-built cars.[152] For most devout racing fans before and after the Second World War, stock car racing was a novelty, a disorganized sport restricted to isolated dust bowl tracks of the rustic hinterlands. True racing, for the largest section of American race fans, meant AAA sanctioned events such as the popular "Sprint" and "Midget" racing series that cultivated talent for the national "Big Car" championship, the league that competed annually in the "Indy 500." Stock car events were most often derided as ridiculous mimicry of the speed and technical sophistication of such genuine racing. As one fan put it, "… nothing is to be admired about a stock car." Referring to the crash and bang style of so-called "jalopy racing" he continued, "The only way you can take a pretty or interesting picture of one is turn it upside down. That seems to appeal to certain types of people. I have been working with an auto wrecking company since my release from the Navy in 1946, so I am certainly not going to spend my Saturday nights or Sunday

[151] "Minutes of the First Meeting," ISC archives, p.6.
[152] ''The Gravel Pits,'' *Speed Age*, September 1950, p.50, Owen R. Gray, ''Racing is Rugged in Texas,'' *Hot Rod Magazine*, January 1951, p.20

afternoons looking at the same type of junk."[153] Though they might never achieve the same status as competition using purpose-built racecars, France suggested that other standards of respectability must be met if production based racing was to become a sport deemed appealing by "the average person."[154] He seemed to know that it would be easier to cultivate new fans than try and convert those of the racing establishment to his type of racing.

Uniform rules and a national championship would go far toward creating respectability by equating production based race events with existing forms of motor sport. The structure under consideration at the Streamline meeting, a national championship with uniform rules, would accomplish this. More crucially, France wanted to cultivate public identification between racing and the cars on the street. The association between the vehicle on the track and the vehicle a fan owned could be vital to enhancing respectability and ultimately vital to attracting sponsorship. The illusion that a car on the track was indeed "stock" remained vital to attracting the promotional attention of automakers. This assertion was also crucial for suggesting that stock car racing offered a social benefit by providing a regulated laboratory for testing automobiles. As a more immediate benefit, he suggested that the physical appearance of the cars was crucial for building respect among the larger racing community and acceptance from racing fans.[155] To that end, France recommended that certain standards of appearance be set to prevent production-based racing from becoming identified as contests between "jalopies."[156]

France's use of the pejorative term "jalopies" in reference to some production based racecars seems to have hit a raw nerve, as there was discussion about removing

---

[153] Bill Swaim, "Tis a Fact Suh," *Speed Age,* August 1950, p.8.
[154] "Minutes of First Meeting," ISC archives, p.6.
[155] "Minutes of First Meeting," ISC archives. p.7.
[156] Ibid. p.8.

his comments from the minutes. France then described how the viewing public, the fan, might be put off by the most sophisticated car if it had a rough appearance.[157] Reference to the perceptions of fans suggests that France was more concerned with perceptions of the racecar than a vehicle's actual composition. The dissent expressed by racers over this suggestion, the only issue raised during the entire meeting that registered controversy, suggests that bringing about respectable appearance for the race vehicles was a contentious matter. Adopting rules specifying late model "strictly stock" cars as standard for NASCAR's premier series in 1949 would ultimately resolve the appearance issue.

Ducking further conflict over the jalopy issue, France closed his discussion on the physical appearance of racecars by asserting that good looking cars would put on a more entertaining show. This matter is crucial to understanding Bill France's take on public expectations. By maintaining a stock appearance, NASCAR racecars could claim to be racing in the public interest; that NASCAR stock car racing was a test bed for Detroit. This innocuous function probably helped deflect criticism from the sport from persons and institutions not enamored of speed sports. More importantly, the stock exterior also permitted, for enthusiasts, the opportunity to make the association between the car on the track and the car on the dealer's showroom floor. In time, the clean, stock external appearance of the cars permitted NASCAR to maintain an aura of stock long after the cars had become mere conglomerations of stock components.

Despite Bill France's failure to bring about consensus on the external standards of the race vehicles, it is important to note that he considered a clean, non-jalopy appearance critical for respectability and building association with the "average person."[158] NASCAR, when created, would concern itself with the creation of a palatable

[157] Ibid.
[158] Ibid. p.9.

public image rather than simply sanctioning and governing an existing form of motor sport. It also seems likely that France understood that a recognizable, perhaps even new car on the race track was appealing to fans.[159]

In his closing remarks, France tackled the issue of organizing the meeting members to undertake the business of writing rules for the newly formed organization. He suggested that the following morning, two committees be formed to hammer out the details of how to sanction a national championship series banking on the potential of production-based racing. One committee, composed of drivers and mechanics, would hammer out the technical details of the emerging championship series. The other, composed of promoters and car owners, would work up regulations for racing procedure and discuss business matters. These committees would create the rule book blueprinting the first season of NASCAR stock car racing.[160]

After his speech, there was general discussion on the problems that confronted the racing community in 1947, issues that interfered with the interests of promoters and the aspirations of racers alike. These same issues, France believes, had kept production-based racing balkanized affair. Different tracks and regions adhered to different rules, while promoters and participants were not bound to regular prize payoff or race attendance. Differing sets of rules differently advantaged some racers, and irregular business practices hindered the ability to attract and maintain a loyal fan base. It was agreed that if the promoters and racers present wanted to act in concert, they would have to form long-term plans for the sport. Such plans would include rules that let competitors travel across the nation and compete on an equal footing, and assurances

[159] It remains unclear when France and NASCAR first considered racing strictly stock vehicles in a national championship series. Though France does not mention this notion during the Daytona meeting, his preoccupation with the external appearance of the cars suggests that he was already considering a strictly stock format for NASCAR's second year.
[160] "Minutes of the First Meeting," ISC archives, p.9.

that prize money and insurance could structure stock car racing as a more regular profession.[161]

After the first day of the meeting to form NASCAR, it was clear that the only factors preventing stock car racing from becoming a success were regularization, integration and respectability. The points outlined by Bill France all focused on creating a legitimate, professional sporting series out of production-based racing. Regularization would come with rules, schedules, and procedures to bring about the consistent production of close competition between equivalent racing cars. Accepting and organizing existing grass-roots racing enterprises would integrate the participants of production-based racing into an informal system that fed talent to the top tiers while reaping profits throughout the lower levels. In addition to bringing in capital, and cultivating new talent, this structure helped focus attention on NASCAR as the single entity responsible for organizing production-based racing in the United States. These first two issues dealt more with people already committed to racing production-based vehicles and as such success could be realized largely through organization. Cultivating respect for production-based racing dealt with shifting the attitudes of fans and the general public and was a more complex matter.

Respectability, an issue that went to the core of production-based racing and more established forms of purpose-built racing, would take more time to build. The massive task of organizing and administrating races at the grass-roots level nationwide, would help gather respect. In addition, standardized rules and a regular schedule of events could enhance the credibility of NASCAR. Yet these instrumental issues would not negate the considerable power exercised by the AAA, the organization competing with the NASCAR for control over racing in the United States. For France one crucial key to respectability not shared by all meeting attendees was the exterior appearance of the

[161] Eugene Jaderquist, “NASCAR Primer,” *Motor Trend*, May, 1952, p.46

cars. Though unforeseen, this issue would ultimately find resolution with the creation of the Grand National stock car championship as the top tier of production-based racing. Respectability among the fans meant having the sort of clean, well-maintained machinery the “average person” could identify with. Competition with such cars would fill the stands of race events with fans eager to see close competition between racing drivers in machines similar to those on the showroom floor. In choosing the strictly stock format, NASCAR chose the arena for struggle with AAA over legitimate racing in America.

But before NASCAR and the AAA could butt heads over the definition of “real racing,” practical organizational matters had to be decided. On Monday, after the election of Connecticut race promoter Bill Tuthill as temporary chairman, the two committees were formed to begin creating a rule book. The competition committee, composed of promoters and car owners, divided the country into equal racing regions, figured out uniform procedure for the conduct of races, and decided how to divide the racing schedule among relevant tracks and promoters. Initially, the book of rules contained little about the conduct of race meets. Indeed, the 1948 rule book that resulted from the meeting at the Streamline Motel contained only five guidelines suggesting proper procedure for a race. While possibly a consequence of not having a clear picture of how best to run a race, it seems more likely that the original staff of the fledgling competition committee were unwilling to dictate too much of the action before their legitimacy was established. Rather than focus on uniform procedure, the traditional terrain of promoters, the first rule book focused on specifying the technology of competition.

The technical committee, composed mostly of racecar owners, drivers, and mechanics, restricted their efforts to defining the technological parameters of eligible racecars. Their task was to prohibit the dominance of any single type of car. By

establishing standards for engine displacement, acceptable modifications, and possible application of speed equipment, they created a technical baseline for stock car racers that became a national specification.

Nation-wide ubiquity on the scale described by France and in NASCAR's rules had never been attempted in motor sport. During the second year of operation, NASCAR, on all three level of competition, sanctioned more races than the AAA Contest Board on all the levels it sanctioned.[162] Creating this sort of scale of regulation over such a short period of time was only possible because smaller racing leagues existed to be unified, and because automobile mass production allowed material uniformity across the nation.

Apparently the bulk of meeting attendees agreed with Bill France's assertion that mechanical ubiquity and technological parity translated into good competition on tracks full of economical racecars. The work of the technical committee amounted to thirty-five statements governing the construction of a stock car for NASCAR competition.[163] Rules permitted the use of any cylinder head, as suggested by Bill France, and even the use of hot rod components such as superchargers and magneto ignition.[164] Even though it would be a year until the "strictly stock" racing began, the pattern for regulating competition was set. NASCAR leveled the playing field by mandating similar equipment based on cost not origin. This attention to uniformity and economy helped fill the field with racecars without arousing resistance from race promoters.

Though the mythology surrounding NASCAR's creation often suggests that introducing "strictly stock" racing was a unified, long term plan conceived and executed

---

[162] *NASCAR Newsletter*, January 12, 1957, p.1, *NASCAR Newsletter*, December 21, 1953, p.1,John Painter, "NASCAR Prexy Talks," Speed Age, August 1954, p.55, "Summary of 1955 activity," AAA Correspondence, Smithsonian Insitution Transportation Collection NMAH, Washington, D.C.
[163] NASCAR, *1948 Stock Car Racing Rule Book*, (Daytona: NASCAR) 1948, p.2
[164] Ibid.

by Bill France, there was no mention of racing "strictly stock" cars during the organizational meeting. While it is possible that France planned to introduce the strictly stock format from the beginning, he did not share these plans with the racers gathered in Daytona.[165] What seems more likely is that France introduced the strictly stock format in 1949 as much as means of fielding a group of respectable looking newer cars and of distinguishing NASCAR from existing forms of "Modified" and "Sportsman" classes. The eventual shift to Strictly Stock, through starting with specifications created by manufacturers, would also prove an easy way of creating a baseline from which rules governing the parameters of racecars evolved.

For those meeting at the Streamline, the parameters of car construction had more to do with existing conventions built by "Modified" and "Sportsmen" competition on tracks across the country. After agreeing on the details of competition, rules governing car construction, and guidelines for a competitive schedule on Monday and Tuesday, Wednesday was reserved for creation of a point scheme whereby the champions on each tier would be crowned. A championship based on total points awarded for finishing position over the course of a racing season was not novel. AAA racers in the Championship, Sprint and Midget series had been run in pursuit of a national championship for decades. However, the NASCAR points system proposed by driver Red Byron, and adopted late Wednesday afternoon awarded points and money more deeply into the field of finishers than other established series.[166] The point system was linked directly to the system of payout for each race and rewarded consistency in competition almost as much as victory. Unlike the AAA, where points were offered to the

[165] Though many accounts suggest that Bill France planned from the beginning to develop a strictly stock racing series, there is no evidence of such prescience in the minutes from the meeting to form NASCAR. See, "Minutes of First Meeting," ISC archives, "NASCAR News Bulletin - The Story of NASCAR 1948-1970," ISC archives, Fielden, Vol.1, p.6.
[166] "Minutes of First Meeting," p.12.

top 12 finishers in large events, NASCAR awarded points to the first 22 finishers.[167] The relatively "flat" distribution of points leading to the NASCAR championship favored consistent participation and had the effect of encouraging drivers to compete in the maximum number of events. Because pay was to be distributed relative to points, NASCAR racers also enjoyed distribution of pay deep into the ranks of competitors. Spreading the proceeds among the racers, even if it meant giving less money to the top finishers, made racing a possible career for entrepreneurial driver / owners. In contrast to the patron/ professional operator format of AAA racing (an arrangement reminiscent of thoroughbred horse racing), NASCAR's relatively flat distribution of points and money throughout the ranks helped keep more competitors of limited means financially viable. Alhough it would take a lot of success to get rich in NASCAR, racers could continue competing because they usually took home some prize money. A widespread distribution of rewards also helped build a cadre of professional racers willing and able to drive a full season.[168]

With the creation of NASCAR, the relationship between motor sport and business was recast. In contrast to the AAA, NASCAR racing was more about providing entertainment than facilitating racing in the public interest. For NASCAR it was important to have close racing and stands full of fans each week. The AAA Contest Board, apparently influenced by the public service and automotive advocacy role played by the AAA, was more interested in simply facilitating the sport of automobile racing. Even the AAA rule book justified racing as an experiment conducted on the behalf of public interest suggesting that

---

[167] American Automobile Association Contest Board, *AAA Official Competition Rules 1947*, (Washington, DC: American Automobile Association, 1947), NASCAR, 1948 Rule Book, (Daytona Beach: NASCAR, 1948), p.9.
[168] Roger Huntington, How Did it Get this Way?, *Speed Age*, June 1952, p. 37-38.

> the need for testing will remain as long as there are cars and a public which buys them. The element of sport which has surrounded the automobile from its earliest days will live. People will always like to witness tests of speed and there will always be adventurous men who enjoy the thrill of participation in them. Adventure, engineering, sportsmanship, fame, fortune careers and scientific testing are combined in automotive competitions as in no other activity in the world.[169]

In contrast, NASCAR promoted races with unapologetic concern for the entertaining aspects of the sport. Though NASCAR did describe its racing as a laboratory for the automakers in Detroit, this was typically proposed as a benefit secondary to entertaining the masses. Entertainment using production-based vehicles that looked like cars straight from the stock of automakers was their primary mission.

When the Ebony Lounge at the Streamline Motel emptied on Wednesday evening, the foundation for a stock car racing empire was in place. The Rule Book resulting from four days of meetings united technological specifications and event scheduling under the auspices of a national championship. Bill France had effectively brought competing promoters into the fold by promising consistent racing action between closely matched cars. By designing an approach that promised to make stock car racing a regularized, integrated, and respectable enterprise, NASCAR was in a position to capitalize on America's growing fascination with fast cars.

The names of the notable drivers, car owners, and promoters that met to form NASCAR were printed on the cover of the 1948 Rule Book.[170] Despite this show of solidarity between racers from differing regions with different occupations, in time control over NASCAR and its mandates would become concentrated in Daytona in the hands of

---

[169] United States Auto Club, *Official Competition Rules*, 1958, p.13.
[170] NASCAR, *1948 Stock Car Competition Rule Book*, (Daytona Beach: NASCAR, 1948), p.4.

NASCAR president Bill France. Just how voluntarily the charter members allowed power to become so concentrated is unknown. It does, however, seem likely that much of the drudgery of starting up a racing series, endless travel, settlement of countless disputes, and operating on a shoestring budget was willingly transferred to France.[171] That is to say that he gathered power because he was always on hand to assume responsibility.

In addition to putting in long hours organizing, officiating, schmoozing, and traveling, concentrating this power was due in no small part to continued, subtle revision of the rule book presided over by Bill France. Over time, the responsibility for decisions about racing procedure and racing equipment was ceded to France and NASCAR. With each subsequent rule book, the list of rules governing procedure and technology lengthened; the list of people responsible for the rules grew shorter.

Most importantly, NASCAR's Rule Book, though conceived as a yearly set of regulations, became a flexible tool for the exercise of discretionary power. The areas of jurisdiction wherein NASCAR officials (Bill France was the top NASCAR official) could exercise discretionary judgment and change rules at a moment's notice became useful gray areas that permitted on-the-spot manipulation of events in "the spirit of competition."[172] In time, the discretion with which decisions could be made broadened until Bill France could alter whole sections of the rule book anytime he felt it necessary. While such potential for caprice infuriated many competitors even as it reinforced France's paternalistic management style, it also gave NASCAR the sort of flexibility it would need to rein in headstrong competitors and consistently produce close competition. Exercising control over the rules also allowed, in time, NASCAR to challenge the will of American automakers, large corporations with a vested interest in motor sport.

---

[171] Yunick, p.106.
[172] Yunick, p.257.

Because manipulation of the rules meant so much to controlling competition, it is useful to track how and when some of the changes occurred that left Bill France in complete control. The consolidation of control occurred through a gradual shift that began soon after the formation of NASCAR. Though NASCAR was the product of an agreement between eighteen men, it was incorporated and owned by just three. Early in 1948, promoters Bill France and Bill Tuthill and Daytona lawyer Louis Ossinsky incorporated NASCAR.[173] The fledgling institution operated with Bill France as President and Bill Tuthill as National Secretary until Tuthill sold his share to France in 1953.[174] With majority control of the corporation and no apparent interference from Ossinsky, France ran NASCAR as his own. Ossinsky was ultimately bought out in 1971.[175] This consolidation of control contradicted the cooperative flavor fostered at the 1947 Daytona meeting. Though probably less egalitarian, the dictatorial control enjoyed by France after 1953 did allow tremendous organizational flexibility and contributed to NASCAR's success.

In the beginning, however, ownership of NASCAR did not imply control of the stock car racing it sanctioned. Gradually, by extending control over the rule making and enforcement process, France worked to win the allegiance or acquiescence of racers operating in NASCAR competitions. Consolidation of control over the sport began as soon as the second rule book was issued in 1949. In this set of rules, the responsibility for creating, enforcing and adjusting the rules shifted away from the group that met at the Streamline to a National Stock Car Commission acting with an advisory board composed of drivers, mechanics, and car owners. In an apparent move to bring prestige to the young organization, famed motorcycle endurance racer "Cannonball" Baker was named National Commissioner. He exercised little input over the sport, and his expertise

[173] France and Britt, p.16.
[174] Russ Catlin, "A Shrine to Speed," *Speed Age*, June 1955, p.30.
[175] Fielden, Vol. 3, p.319.

would not be tapped until a dispute in 1954.[176] Given the infrequency of input from Cannonball, it seems likely his role was largely ornamental.[177] In addition to "Cannonball" Baker, the "National Stock Car Racing Commission" consisted of Bill France and fellow promoter Bill Tuthill.[178] The Commission acted in communication with an "Advisory Board" consisting of two car owners, a medical doctor, and the insurance salesman responsible for insuring NASCAR events.[179] As there remains no record of any communication between the NASCAR Racing Commission and the Advisory Board, it is unclear how much input they had in determining the technology or procedure of competition. Given that Bill France was on the racing Commission, president of NASCAR, and attended all the races, it seems reasonable to assume that, as early as 1949, he ultimately controlled all facets of NASCAR's rule creation, adjustment, and enforcement.

By 1949, it is also clear that, despite being represented at the founding meeting, the power to control events had shifted away from the mechanics and drivers. Not only were there less direct means to offer input on matters of rules, membership as a racer in NASCAR began to entail more than simple casual association. Beginning in 1949 NASCAR required each car to be attended by a licensed driver and a licensed mechanic.[180] Though this could be the same person, the licenses were different and a fee had to be paid for each one. Increasing the number of racers licensed for each car both raised more money for NASCAR and helped encourage consistent participation in NASCAR events. Once the investment in membership had been made, it made more economic sense for racers to participate in the maximum number of events.

---

[176] "Editorial," *Speed Age*, June 1954, p.11.
[177] Fielden, Vol. 2, p.55.
[178] This is the same Bill Tuthill from Conneticut, by 1953 he had moved south to open his "World of Speed" museum in Ormond Beach.
[179] Perry Smith of Columbia SC, Fred Dagavar of Long Island, New York.
[180] NASCAR, *1949 Stock Car Racing Rule Book,* (Daytona Beach: NASCAR, 1949), p.4.

In addition to concentrating power into the hands of Bill France, NASCAR also instituted several rules to address issues that helped gain respectability. Payment into a benevolent fund, intended to compensate injured drivers, became necessary to gain access to the track.[181] This provision helped keep the pits clear of unnecessary persons and prevented potential dependence on the largess of the town hospital nearest the race track. That the amount of insurance coverage offered per event was offered in NASCAR advertisements suggests that this matter was important both to racers and the credibility of the series.[182] Though these measures often cost racers money or imposed new patterns of behavior, they ultimately provided polish to levels of motor sport that were once considered barbaric by demonstrating that racers would take care of their own.

Another new rule demonstrated just how flexible Bill France's NASCAR could become in the interest of promoting racing. Despite advertising that claimed NASCAR racing was "racing that is open to everyone," the 1949 rules prohibited Women and children from entering the pits unless they owned a racecar.[183] This rule remained in the NASCAR rule books until 1971, but was not enforced when it appeared that the novelty of including women might boost ticket sales. While the AAA enforced its prohibition of women racers, NASCAR allowed Louise Smith, Ethel Flock Mobley and Sara Christian to compete between 1950 and 1954.[184]

---

[181] Ibid. p.5.
[182] "NASCAR Grand National Racing for 1954," *Speed Age*, August 1954, p.55.
[183] "A Real Schedule for 1950", *Speed Age*, June 1950, p.43.
[184] Sandra Hunt, "Ladies First", *1971 Charlotte World 600 Program*, International Motorsports Hall of Fame and Archives, Talladega, Alabama.

Figure 1: Bill France on Daytona Beach with Miss NASCAR circa 1953 -- Though women were allowed to participate in some early NASCAR events, they were encouraged to serve as symbolic rewards.

Image courtesy: International Motorsports Hall Of Fame archives, Talladega, AL.

Though the bulk of 1949 changes modified or augmented the text of the rules written at the Streamline in December of 1947, the most significant feature of the 1949 Rule Book was not brought up during the initial meeting. This change marks the transition in stock car sanctioning from a discussion between interested parties to a centralized control over racers as independent contractors. A message, printed inside the back cover apart from the bulk of the 1949 rules states that, “All NASCAR members, when signing for NASCAR membership, agree to abide by the decisions of the Racing

Commission."[185] This statement, located separately from the bulk of the rules, effectively brought racers who joined NASCAR under the control of NASCAR. By 1953 the object of allegiance mentioned in this legally binding caveat would shift from the "Racing Commission" to simply "NASCAR."[186] Also after 1953, with France owning a strong majority of NASCAR and taking an active role in managing the sport, allegiance to NASCAR equated to acceptance of Bill France's complete control.

Whereas before 1950, race promoters had the right to prevent anyone or any cars from competing that might be "detrimental to the show," beginning in 1950, NASCAR officials also had that power. [187] Similarly, where the method of time trials to qualify for the main event had once been up to the promoter's discretion, NASCAR now stated that it had to approve the method to be used for qualification.[188] As the shift toward procedural uniformity continued it accompanied a gradual transfer of the control exercised by promoters to NASCAR officials. To create procedural uniformity between events, and probably also to expand control over the conduct of competition, NASCAR began to administer more of the details of competitive events. Procedurally, the races were started, scored and paced by NASCAR officials.[189] Assumption of these functions helped further systematize what were initially local events while further establishing NASCAR's control over production-based racing. While it is possible that promoters were willing to transfer the operational details of race day administration, it seems equally likely that NASCAR saw uniform control of race events as another means of providing consistent racing action to their growing fan base.

---

[185] NASCAR, *1949 Stock Car Racing Rule Book*, (Daytona Beach: NASCAR, 1949), p.8.
[186] NASCAR, *1953 Stock Car Racing Rule Book*, (Daytona Beach: NASCR, 1953), p.3.
[187] NASCAR, *1950 Stock Car Racing Rule Book*, (Daytona Beach: NASCAR, 1950), p.3.
[188] Ibid. p.5.
[189] Ibid., p.6.

By 1950, the Advisory Board had been completely dropped from the listing of the NASCAR administration. With the dissolution of the Advisory Board, there was no longer any direct mechanism for offering feedback about NASCAR rules. In a move apparently intended to replace the committee, there was an indirect feedback function given to the NASCAR Newsletter, the bi-monthly newsletter sent to all NASCAR members.[190] A brief statement published each year solicited comments and recommendations regarding the rules from NASCAR members. It remains unclear if any recommendations offered through this indirect method were acted upon. What is clear, however, is that Bill France had begun whittling away portions of the NASCAR organization that infringed on the unfettered exercise of his control.

In 1951 the gradual shift of rules toward centralized control continued. In a change apparently intended to bring promoters further under its power, NASCAR reserved the right to withhold sanction from any promoter that had not met their financial obligations to NASCAR.[191] Apparently the traditionally lax accounting and payment methods utilized by promoters did not suit NASCAR's ambition to regularize production-based racing on a national basis. This ruling was probably put in place to prevent speculation by financially marginal promoters unable to front money for a sanction or to keep greedy promoters from retaining too much of event profits. Accounts of racing during the late 1940s and early 1950s frequently mention such unscrupulous promoters. NASCAR racer Ned Jarrett recalls how occasionally, "promoters would advertise a certain purse and then maybe a good crowd wouldn't show up and they'd just hang the green flag out and they took off with the money and the drivers would run until they finally figured out that they weren't going to get paid and so they just quit."[192] Whatever

[190] *NASCAR Newsletter*, Vol. 1, No.1, November, 7, 1951, p.4.
[191] NASCAR, *1951 Stock Car Racing Rule Book Rule*, (Daytona Beach: NASCAR, 1951) p.8.
[192] Ned Jarrett interview, "Speed and Spirit," 21:05:51

the intention, this rule change made certain that before any cash flow from events occurred, NASCAR had already gathered its share. NASCAR also claimed the right to pay the prize money to winners, effectively taking promoters money in escrow until the close of the race and then distributing it among the winner.[193] This transfer of prize allocation gave NASCAR a powerful symbolic role in rewarding its drivers and car owners while providing financial leverage over these same individuals. If any of the racers owed money to NASCAR, it seems likely that it could simply be deducted from their winnings. Though seemingly administrative details, these changes in race event accounting suggest that "strictly stock" racing was making money and that NASCAR wanted more control over its share.

Nascar introduced measures to bring regular order to events and to exert uniform control over promoters in 1950-51. New guidelines limiting the number of pace laps and the amount of time racers were allowed to report for a start, established NASCAR as a reliable arbiter of consistent racing. These two rules, listed as the "five minute rule" and the "three lap rule," state that a driver has five minutes to get to the starting grid after the pole position car reports for the start and that a race will be delayed with caution flags no more than three laps.[194] While other forms of motor sport struggled to maintain schedules, NASCAR operated according to strict and predictable guidelines.[195] Regular schedules and procedure designed to keep the maximum amount of racing action in the public eye for the longest possible time helped NASCAR establish itself as an entertainment industry.

---

[193] NASCAR, *1951 Stock Car Racing Rule Book*, (Daytona Beach: NASCAR, 1951), p.8.
[194] NASCAR, 1950 Stock Car Racing Rule Book (Daytona Beach: NASCAR, 1950), p.5., NASCAR, 1951 Stock Car Racing Rule Book (Daytona Beach: NASCAR, 1951), p.6.
[195] Ray Thompson, "Auto Racing Publicity," Speed Age, April 1950, p.35.

With NASCAR exercising increasing control over racer's talents and time, it was not long before the interests of an emerging class of professional racers began to conflict with those of the sanctioning body. Despite the good chances of winning money in a NASCAR race, some racers were tempted to augment their earnings by competing in races not sanctioned by NASCAR. As this practice undermined the creation of a unified series and offered talent and resources to business competitors, NASCAR treated it as the gravest offense. Territorial limits were imposed in 1950 to encourage NASCAR members to compete at NASCAR sanctioned races.[196] These included not competing in a non-NASCAR race within 200 miles of a NASCAR sanctioned event. In 1951, the parameters for competing in a non-sanctioned event were changed to include an "area as prescribed by NASCAR officials."[197] If a driver wanted to race in an event sanctioned by someone else, rather than using a map to confirm legality, racers would have to contact officials ahead of time for permission. Typically such permission required a bond payable to NASCAR.[198] The control such discretion offered should not be underestimated. When a racer was trying to make a living by competing in races, controlling the number and type of races that he or she could enter was a powerful tool. Bill France and NASCAR fought to keep their drivers away from events sanctioned by competing associations, or at least keeping a close eye on where they were competing.

Yet, extending control over the racers working under NASCAR sanction was not sufficient to guarantee control over stock car racing in the United States. Beyond concerns about meeting the demands of potential fans, Bill France had to be concerned about the larger context of the motor racing world into which NASCAR was born. Even though NASCAR was the first organization to capitalize on the production-based format

---

[196] NASCAR, *1950 Stock Car Racing Rule Book*, (Daytona Beach: NASCAR, 1950), p.6

[197] NASCAR, *1951 Stock Car Racing Rule Book*, (Daytona Beach: NASCAR, 1951), p.7.

[198] *NASCAR Newsletter*, November 6, 1953, p.4

on anything like a national scale, it was still the newcomer. The AAA Contest Board claimed the sole right under authority of the Federation Internationale de l'Automobile (F.I.A.) "to authorize and supervise automotive competitions and tests of any kind,"[199] and was not amused by the upstart racing group in their "stock" cars. Just seven months after the first NASCAR strictly stock race in June of 1949, the AAA declared war on NASCAR. A press release describing the February meeting of the Contest Board states that, "Effective immediately the contest board will sanction and supervise legitimate stock car racing events on tracks one mile or more in length where a creditable race can be held under approved racing conditions and only by accredited AAA promoters."[200] This decree, using language suggesting that NASCAR racing was not legitimate or creditable, drew the AAA into direct competition with NASCAR.

Though the AAA had long maintained specifications for "strictly stock" cars, these standards were largely reserved for vehicles competing in performance trials. In keeping with the AAA perspective of public service, these trials and speed runs were conducted with laboratory precision, not the competitive gusto of a stock car racing event.[201] The AAA had demonstrated an unwillingness to consider sanctioning sportsmen and modified "jalopy" racing (according to one account even Bill France had approached the AAA about organizing a national championship for production-based racing just before he organized NASCAR[202]) infringing on AAA's talent was a different matter. The Contest Board wanted to be sanctioning the top level of competition for any type of auto racing in the United States. With the strictly stock formula introduced in summer of 1949,

---

[199] American Automobile Association, *AAA Official Competition Rules for 1947* , (Washington DC: American Automobile Association, 1947).
[200] "American Automobile Association Contest Board Official Bulletin, March 9, 1950," AAA Correspondence, Smithsonian Transportation Collection, NMAH, Washington, DC.
[201] Roger Huntington, "The Truth About Stock Car Records, *Speed Age*, February, 1950, p.18.
[202] Don O'Reilly, "NASCAR's History," *Stock Car Racing*, October, 1973, p.78

NASCAR established a new top tier of production-based racing and the AAA wanted control.

Further comments in the same bulletin suggest that NASCAR may have attracted (or possibly poached) some talented drivers from the ranks of AAA competitors. The memo continues, “In the future, AAA registered drivers will not be allowed to participate in any unsanctioned races except where local concessions have been officially granted for small car events.”[203] Clearly there was to be no quarter given to this upstart sanctioning agency. The AAA wanted to control where its drivers raced and was willing to punish drivers willing to compete in production-based events. Apparently in the eyes of the Contest Board it was fine for the upstart sanctioning body to preside over a national championship provided it did not impinge on AAA prestige. However, when NASCAR’s purview began to threaten AAA Contest Board jurisdiction, they struck back.

Despite the scathing tone of the Contest Board announcement regarding the 1950 season, the struggle between NASCAR and the AAA began with more of a whimper than a bang. The first year of the AAA “strictly stock” racing series amounted to only five races. Worst still, the second season was limited to only three contests. The struggle began to heat up when NASCAR responded in 1951 by accepting into its ranks 1949 Indy 500 champion Bill Holland, who was on AAA suspension for competing in a charity event outside of Contest Board sanction.[204] Losing an ex-champion from the premier motor sport event in the nation (and probably the world) to the upstart rabble in their jalopies was a tremendous blow to AAA prestige.

---

[203] “American Automobile Association Contest Board Official Bulletin, January 30, 1951,” AAA Correspondence, Smithsonian Transportation Collection, NMAH, Washington, DC

[204] Eugene Jaderquist, NASCAR Primer, *Motor Trend*, May, 1952, p.18-19 “Association Regulations,” *Speed Age*, February 1952, p.60. “News and Forecast,” *Speed Age*, April 1951, p.47

To offset the loss of an Indianapolis champion into the ranks of stock car drivers, the AAA lured top NASCAR performer Marshall Teague to AAA stock competition in 1952.[205] Teague was one of the top drivers for the Hudson racing effort, a high-profile effort during the early years of NASCAR, winning five out of fifteen starts in 1951. His departure for the AAA ranks, with a Hudson sponsorship, was a blow to NASCAR. There was, however, a glimmer of redemption. In contrast to the lukewarm performance registered by Holland after his defection to NASCAR, Teague's dominance of the AAA racing seemed to suggest that NASCAR racers were, on the whole, a speedier lot.

Despite such mitigating circumstances, NASCAR launched another attack in the struggle with the AAA in February of 1952, when it announced the creation of a speedway car series of its own.[206] Like the open-wheeled roadsters of the AAA Sprint and "Big Car" championship series, these cars were purpose-built single-seaters. As very fast purpose-built cars campaigned on speedways, they were clearly intended to compete with the two premier levels of competition sanctioned by the AAA. Unlike many of the "Sprint cars," and virtually all of the "Big Cars," however, these cigar shaped speedsters used production-based engines. Though the NASCAR's "speedway" division was not a roaring success, and lasted but one year, it did demonstrate that Bill France and company could put together a decent open-wheeled series if the need arose. Perhaps more importantly, the "Speedway Division" offered evidence that NASCAR would fight aggressively to maintain its stake in the racing business.

Elsewhere, France attempted to influence what was happening on the stock car tracks by distinguishing between NASCAR and AAA definitions of "strictly stock." In early 1952 NASCAR appeared to be taking a step back from the truly "strictly stock" definition used by AAA. In an interview conducted during NASCAR's "Speed Week" in February,

---

[205] "AAA Late Model Stock Car Circuit," *Speed Age*, August 1952, p.25.
[206] Steve Pappas, "Speed Week Time Again," *Speed Age*, February, 1952, p.51.

France commented that, ”These aren’t strictly stock cars we run. Better call them ‘Grand National Circuit’ cars, because we have our own specifications.” Suggesting that AAA racing was slow, France continues stating, ”Strictly stock is a nice idea but it won’t work in our races. One Chrysler yesterday lost two wheels cornering at speed. The owner didn’t reinforce his hubs but he should have.”[207] Indeed, despite condemning reactions from AAA, and some fans, the cars raced in NASCAR never matched the AAA definition of “strictly stock.”

From the beginning, alterations in the interest of safety and speed were permitted. NASCAR allowed changes in carburetor jetting, water pump impellers could be altered, and “wheels, hubs, steering parts, radius rods and sway bars [could be] reinforced and strengthened in any manner.” [208] To build a successful series, it was the appearance rather than the substance of strictly stock that mattered. With each passing year, chassis and engine specifications changed to facilitate economical, competitive racing. Innovations were suppressed, weak systems reinforced, and unfair advantages negated.[209] For Bill France (and therefore for NASCAR) the technical details of the car were subordinated to the business of providing entertaining racing. If calling a car strictly stock was a quick and easy way to build a racing series full of respectable looking cars, then so be it.

It turns out that AAA fears about NASCAR encroaching on its territory were not unfounded. The multi-tiered approach to sanctioning races initiated during the founding meeting of 1947 proved a substantial success. By imposing order on existing forms of production-based racing, NASCAR became the largest sanctioning body in the United

---

[207] Eugene Jaderquist, “NASCAR Primer,” *Motor Trend*, May 1952, p.18.
[208] As listed in the1950 rule book, rules for the 1949 strictly stock racing season were not available when the ’49 rule book was printed.
[209] Weak systems – Racing Hubs as made by Holman Moody, Innovations – fuel injection, and supercharging.

States almost over night.[210] As one report indicates, in "1951 NASCAR sanctioned 585 races on 91 tracks and awarded $779,589 in purses plus $40,000 in point money"[211] with much of this going to racers in the Sportsmen and Modified ranks. Apparently, administering several tiers of racing helped fuel phenomenal growth. The same article suggested that NASCAR was, "Racing's Cinderella organization" and that stock car racing under NASCAR "has grown mote than 400 per cent in three years of racing."[212] As NASCAR grew but still struggled with the AAA, it developed an expanding schedule of races each year. This approach satisfied two objectives. NASCAR was paid by the race for its sanction. If Bill France wanted NASCAR to become a big player in the world of motor sport, he needed to take advantage of the growing demand for racing and expand, even if it mean conflict with the AAA.

Despite AAA criticism and competition, between 1949 and 1955 NASCAR realized dramatic growth. After staging only 8 races in 1949, between the 1950 and 1955 the number of high profile NASCAR Grand National events increased from 19 to 45.[213] In contrast, the AAA averaged little more than eleven races per year between 1950 and 1955.[214]

By 1955, there were 45 races in the Grand National championship series with over 225,000 dollars in prize money awarded. The AAA could not boast such impressive figures as it sanctioned but 13 stock car races in 1955, and awarded just over 107,700 dollars in prize money. Though at $85.84 the AAA "purse per mile"[215] average for 1955

---

[210] "Sanctioning Body of America's Most Important Stock Car Races," *Speed Age*, February 1951, p.51
[211] Eugene Jaderquist, "NASCAR Primer," *Motor Trend*, May 1952, p.46
[212] Ibid, p.18
[213] Greg Fielden, *Forty Years of Stock Car Racing*, (Surfside, SC: Galfield Press, 1992), Vol. 1, p.40, 207.
[214] American Automobile Association Contest Board, "1955 Summary of Activity," AAA Correspondence, Smithsonian Institution Transportation Collection, Washington, D.C.
[215] Ibid.

was more than twice the average for NASCAR races, NASCAR offered more opportunities to win money.[216] NASCAR also offered an array of opportunities for gathering money in production-based racing among its lesser tiers of competition. On the AAA stocker circuit, animosity against production based racers, and a lack of experience in open-wheeled cars probably kept drivers from working when a stock event was not on the schedule.

Over the course of five years NASCAR's overall sanctioning activities had grown to dwarf those of the AAA. In 1949, before entering direct competition with NASCAR by sanctioning stock car races, the AAA oversaw 446 events. In 1955, the AAA sanctioned a total of 123 events. In contrast, NASCAR had grown from sanctioning 67 races in the Modified, Sportsmen, and Grand National classes in 1949[217], to sanctioning 1142 races in all tiers of production-based racing in 1955. In assuming complete control over the majority of racing action across the nation by 1955, NASCAR had demonstrated the popularity and the profitability of production-based racing.

Despite the inertia accompanying NASCAR's growth, events outside of American racing would ultimately bring the conflict between NASCAR and the AAA to a close. Following the death of six drivers in AAA sanctioned events, and the disastrous death of over 100 spectators at the 24 hour race at LeMans, France; much public criticism was leveled against automobile racing.[218] On the floor of the U.S. Senate, Senator Richard Neuberger of Oregon stated that "I doubt is there is as much blood shed in Spanish bull rings as is occurring on automobile race tracks in this country."[219] In response to the

---

[216] NASCAR did not use the 'purse per mile' measure that the AAA did, but according to the data for the 1955 season on p. 208 of Fielden, the NASCAR number of dollars paid out for each racing mile in NASCAR was $ 39.12.
[217] "NASCAR," *Speed Age*, April, 1952, p.74.
[218] Barclay Inglis, ''The Facts about the LeMans Incident,'' *Speed Age*, November 1955, p.74-76
[219] Speech on the Senate floor from July 12, 1955 reprinted in, Russ Catlin, "How To Save Racing In America," *Speed Age*, November, 1955, p.13

growing amount of bad publicity associated with motor sport, in early August of 1955 the president of the American Automobile Association, Andrew J. Sordini, announced that, "Upon the completion of the schedule of events already undertaken for the year 1955, the AAA will disassociate itself from all types of automobile racing in the United States."[220] With one quick statement the conflict between NASCAR and the AAA was ended. Though the AAA Contest Board's activities were reorganized under the auspices of the new United States Auto Club, NASCAR's role as premier sanctioning agency for production-based motor sports in the United States was never again challenged. USAC stock car racing continued the championship series begun by the AAA, but it never developed enough momentum to seriously challenge NASCAR.

At the close of 1955, NASCAR stood alone among sanctioning agencies. In just over eight years Bill France had established a national championship for stock car racing that operated without significant competition across the United States.[221] In seven seasons, the NASCAR Grand National series had grown to such prominence that factory sponsored racing teams were commonplace.[222] The year after the withdrawal of the AAA from racing, Grand National competition enjoyed a banner year. NASCAR sanctioned fifty-six Grand National races in 1956, and paid out substantially more prize money than in 1955.[223] As a result of dictatorial management and general public enthusiasm for fast production-based cars, NASCAR had become well-established in a very short time despite isolated outcries regarding safety issues.

---

[220] Fielden, Volume 1, p.173. "American Automobile Association Contest Board Official Bulletin, August 4, 1955," AAA Correspondence, Smithsonian Institution Transportation Collection, NMAH, Washington, DC.
[221] NASCAR even sanctioned "Modified" races in Hawaii, *NACAR Newsletter*, November, 1, 1953, p.3.
[222] Yunick, p. 27, 37, 57, 143. In 1951, 52, and 53 Hudson sponsored NASCAR teams and by 1955 Ford and Chevrolet were developing teams of their own.
[223] Though NASCAR completed fewer races overall (modified, sportsman and Grand National) in 1956, it awarded $1,626,993.54. An increase of $331,000 over 1955. *NASCAR Newsletter*, vol. 7, no 1, January 12, 1957, p.1.

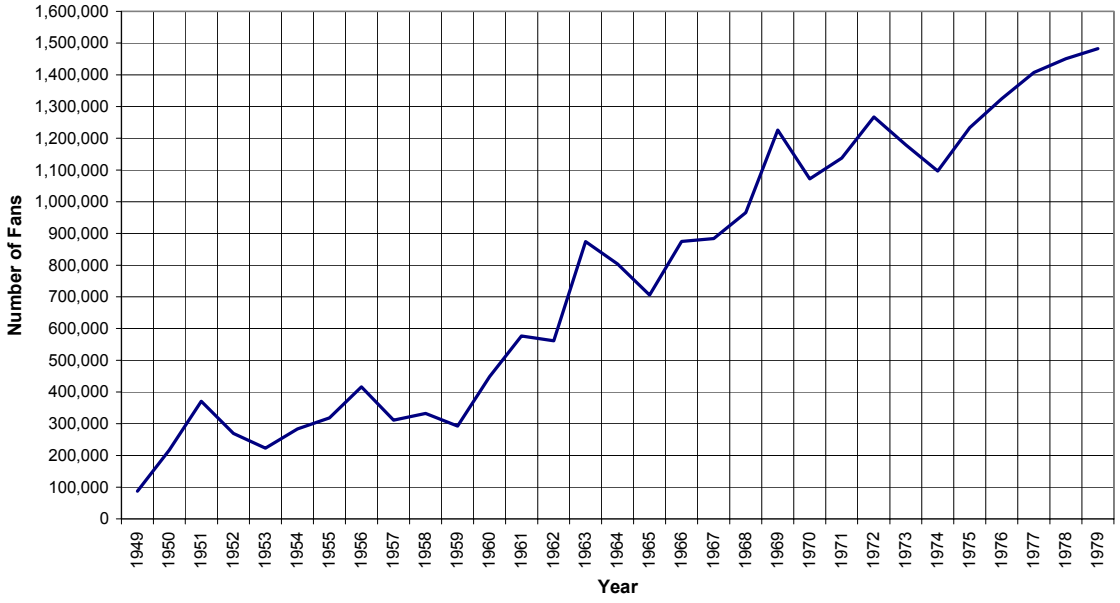
Perhaps because of the close identification with the equipment possible in the case of stock car racing, the public discussion of violence in racing often included references to the barbaric carnage supposedly staged weekly for degenerate Southern fans. As the largest sanctioning body in the country, NASCAR was certainly a target for criticism. “I believe the time has come for the United States to be a civilized nation and to stop the carnage on racetracks,” Senator Neuberger commented. “The deaths on our highways are sad and tragic, but at least they are not purposely staged for profit and for the delight of thousands of screeching spectators.”[224] Where action was initiated to diminish violence on the track, even if intended to apply to all forms of sport, it impacted NASCAR the most.

In June of 1957, the Automobile Manufacturers Association (AMA) enacted a ban on factory support for any automobile racing.[225] Carnage in the annual sports car endurance race at LeMans, France in June of 1955 and numerous deaths on the AAA Championship circuit during the mid-1950s prompted the AMA ban.[226] As a result, the important support that had helped cultivate a national reputation for stock car racing during the 1950s was withdrawn. Yet there was little impact on AAA-style racing using purpose-built equipment or on sports car racing. Neither of these forms relied heavily on products or prestige from American automakers. Unfortunately for NASCAR, the evacuation of support for a series dependent on production-based cars was significant. For five years attendance declined as racing teams lost major factory participation while other forms of racing suffered little change in momentum.[227] (See Table 1)

---

[224] Senator Richard Neuberger from a speech delivered on the Senate floor, July 12, 1955 as quoted in *Speed Age*, November 1955, p.13.
[225] “Detroit Censors Speed,” *Speed Age*, October 1957, p.15.
[226] AAA Contest Board, “1955 Summary of Activities,” AAA Correspondence, Smithsonian Transportation Collection, Washington, DC
[227] In this instance, the SCCA and road racing events it sanctioned were unaffected while the AAA contest board was quickly reorganized as USAC and continued with business as usual.

Table 1: Total Reported Annual Attendance of NASCAR Events, 1949 - 1979

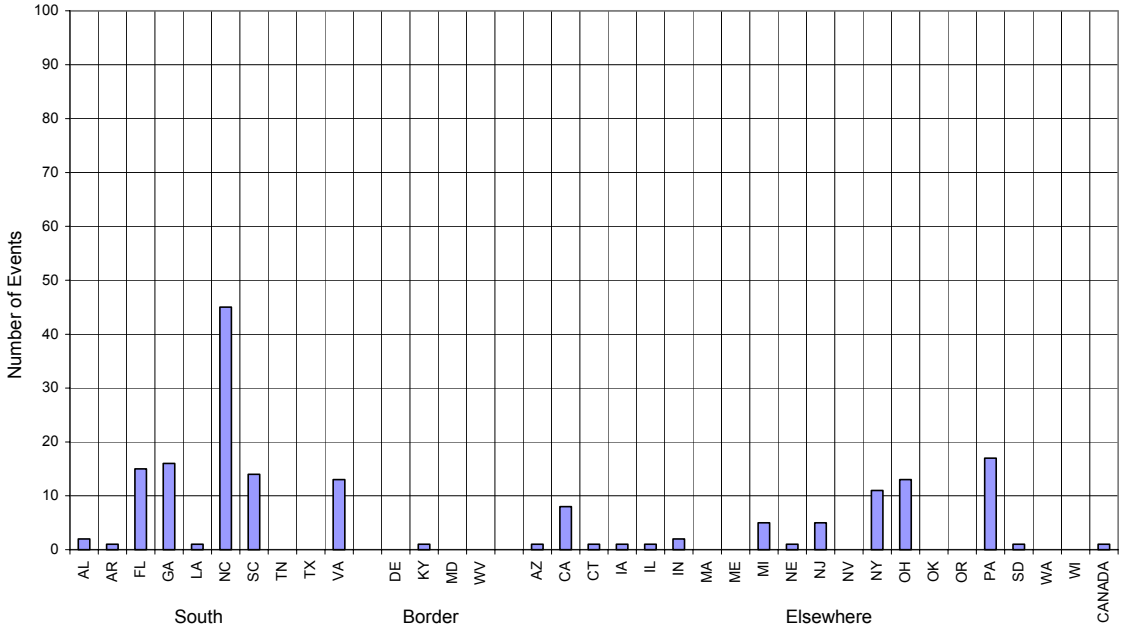


Data Extracted From: Greg Fielden, *Forty Years of Stock Car Racing* , (Surfside, SC: Galfield Press, 1992), Vol. 1-4.

At various times during the decade, financial and technical support for racers from automakers such as Hudson, Oldsmobile, Pontiac, Studebaker, Ford, Chrysler and Chevrolet had helped NASCAR achieve success and respectability. With the withdrawal of factory support in 1957, NASCAR focused less on expanding nationally and more on consolidating growth in regions most amenable to stock car racing. For NASCAR the decade between 1955 and 1969 was a period of Southern retrenchment that allowed stock car racing to recover from the loss of factory sponsorship and consolidate a loyal fan base within the southeastern United States. This period heavily influenced the composition of NASCAR patrons and shaped eventual perceptions of stock car racing when it again appeared on the national scene.

Popular histories often cite the moonshining roots of some competitors as evidence that NASCAR was Southern from the beginning. [228] Yet any such regional association was not initially embraced by NASCAR. During the first decade there was much official emphasis devoted to shaking any regional association with the South. Indeed, NASCAR spent much of its first five years trying to make stock car racing a genuinely international sport. Between 1949 and 1954, NASCAR staged races in 23 different states and Canada. (See Table 2) During this period, there were more races in the state of New York, than in Alabama, Arkansas, Louisiana, Tennessee, and Texas combined.[229] Not until the five seasons between 1955 and 1959 did NASCAR competition begin to concentrate its competitions in the South. (See Table 3)

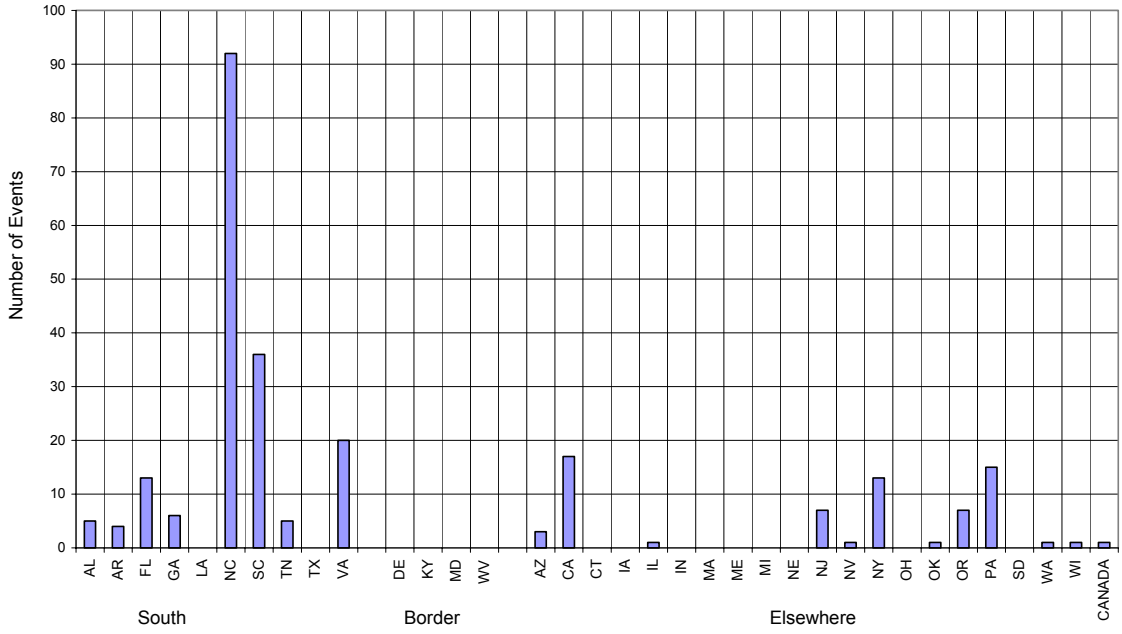
Table 2: Location of Events by State and Region, 1949-1954



Data Extracted From: Greg Fielden, *Forty Years of Stock Car Racing* , (Surfside, SC: Galfield Press, 1992), Vol. 1-4.

[228] Mark D. Howell, *From Moonshine to Madison Avenue: A Cultural History of the Winston Cup Series*, (Bowling Green, OH: Bowling Green State University Popular Press) 1997, p. 11-12.
[229] Data from, Fielden, Vol. 1.

Table 3: Location of Events by Region and State, 1955-1959



Data Extracted From: Greg Fielden, *Forty Years of Stock Car Racing*, (Surfside, SC: Galfield Press, 1992), Vol.1-4

NASCAR event scheduling policy clearly intended to develop a racing series unifying production-based racing across North America. Even its letterhead hinted at this ambition, presenting the ambitious (if somewhat confusing) title of NASCAR International (NASCAR is short for the *National* Association of Stock Car Automobile Racing).[230] Despite such ambitious nomenclature, by the time NASCAR racing resumed earnest national growth in the 1970s, stock car racing had become known as a particularly Southern endeavor.

Much of this persistent association with region was the region resulted from of historical happenstance and the demographics of mass entertainment. When NASCAR was formed, potential fans in other regions were already concentrated in urban areas and following professional “stick and ball” sports. During the 1920s, while southern workers struggled within an agricultural and emerging textile production economy,

[230] NASCAR, *1950 Stock Car Competition Rule Book*, (Daytona Beach: NASCAR, 1950), p.3.

working class fans elsewhere became affluent enough to begin following sports as entertainment. Working class fans of the East coast and industrial Mid-west embraced sports like professional baseball, football and basketball. Teams from the National Football League (1903-1932), American Basketball League (1925-1955), and the International Roller Derby League, among others, were building fan bases in larger urban centers across the northern United States.[231] Where auto racing other than the major AAA Championship series did occur, it was small-time and subject to the whims of racers, promoters, and weather. Though numerous local dirt tracks hosted a full schedule of midget and jalopy racing events, they were far too disorganized, and frequently too far removed from urban centers, to enter direct competition with established professional sports.[232]

The timing of NASCAR's growth suggests that it was the expectations of Southern fans that made it grow into a regionally defined sport. As the Southern industrial working class emerged economically during the decades following the Second World War, NASCAR stock car racing offered entertainment. This "demand pull" also influenced NASCAR because stock car racing served a region longing for emblems of identity in a time of social upheaval. If Boston, Pittsburgh, Baltimore, and Chicago had pro baseball teams, and working class fans in Philadelphia and Cleveland could cheer for pro football teams, Southern fans could rally around the amazing feats of drivers in "production" cars.

Meeting the demand for sports entertainment meant that money existed to create such demand. As the Southern states realized explosive economic growth following the Second World War, the means to take advantage of mass entertainment were available

---

[231] "Dimitry's Extinct Sports Leagues, *http://www.geocities.com/Coloseum/Arean/6825/*

[232] Staff Report, "Farwell to Midgets," *Speed Age*, February 1951, p.28

to the masses for the first time.[233] Across the nation automobile ownership was becoming virtually universal, roads were being built at a rapid pace, and the car was in vogue as a symbol of status and taste.[234] In the South, the emergence of the automobile as a consumer durable of profound symbolic and immense practical value is reflected in the high ratio of car ownership. During the years 1950 through 1975, Southern states consistently reported more cars per driver than the national average.[235] The economic emergence of the South only sharpened the separate impact of these trends. Also between 1950 and 1975, automobile ownership per 1000 citizens realized an average national increase of just under 20 percent, while during that same period automobile ownership in the South increased by more than 26 percent.[236]

The case of North Carolina is illustrative of regional affinity for automobile use. If, during the post war decades, California was the cradle of creative automotive speed culture, North Carolina was the land of road making. In the state-funded creation of this vital component of automobility North Carolina exceeded all other states. With over 75,000 miles of state roads by 1975, North Carolina had nearly 55,000 more miles of state-maintained roadway than California.[237] Additionally, most of the state funded road building in North Carolina was completed before the massive nationwide expansion stimulated by the beginning of the Interstate highway system in 1956. Between 1950 and 1953, the state of North Carolina built over 37,000 miles of roads, more than any other

---

[233] James Cobb, *Industrialization and Southern Society*, (Lexington: University of Kentucky Press, 1984), p.79.
[234] U.S. Department of Transportation, *Highway Statistics Summary to 1975*, (Washington DC: U.S. Department of Transportation, 1976), p.44, Thomas Dimmick, "Traffic Trends on Rural Roads", *Public Roads: A Journal of Highway Research*, U.S. Department of Commerce, Washington, D.C., December 1951, p.225.
[235] *Highway Statistics Summary to 1975*, p.68.
[236] Ibid.
[237] Ibid., p.265, 272.

state in the nation.[238] Though it is possible that state-funded road construction was prompted by the pork-barrel politics of long standing congressmen, and probable that the presence of military bases throughout the state influenced road construction, the scale of the road boom suggests widespread quiescence by the state citizenry. Such was enthusiasm for road building that, by 1965, twenty percent of state funded road construction in the lower 48 states was completed in North Carolina.[239]

North Carolinians were making up for time lost expanding their road system. Road building during the 1910s was on a scale still suited to the needs of horse drawn farm wagons. The 1920s saw increased construction, but on a limited scale. Textile manufacturing was just coming into its own, so much of the existing infrastructure suited state needs. A slump in textile manufacturing and farming during the depression ruled out major efforts during the 1930s, but it also seems likely that North Carolinians wanted automotive mobility to become part of the economic, political and social life of the state. With a surge in the growth of southern manufacturing after the war, the Southern textile processing region, dominated by North Carolina, produced a huge number of new motorists willing to support roadway creation. Whatever the reason, the state's leadership in this area of infrastructure growth suggests that North Carolinians wanted roads and were every bit as excited about the car as their counterparts on the West Coast. If California was the inspirational center of automotive design creativity then North Carolina became a model of automobile use.

Though the exact reasons for this road-building boom remain unclear, the possibilities it created for production-based racing are unquestionable. One way that North Carolinians celebrated the American automobile was staging, attending and

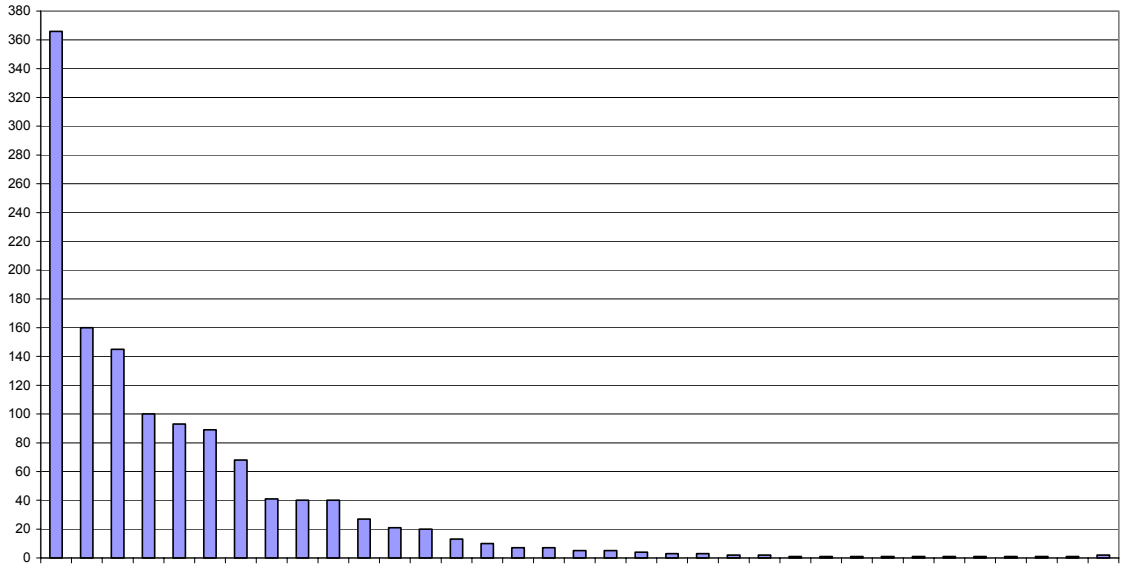
---

[238] U.S. Department of Transportation, *Summary of Highway Statistics to 1965*, (Washington, DC: U.S. Department of Transportation, 1967).
[239] Ibid.

competing in stock car races. Between 1955 and 1964, more than one third of all Grand National races were staged in North Carolina.[240] Even as late as 1979, the state still accounted for well over a quarter of all NASCAR Grand National races yet run.[241] (See Table 4) The connection between the growing road system and racing stock cars is telling. The growing infrastructure helped bring fans to tracks and the growing economy provided dollars for fans, racers, and promoters to spend on racing events. New roads and a higher percentage of drivers helped build the association between action on the track and common experience of the fans. More cars and roads across the South, helped foster a dimension of vicarious association possible with stock car racing. Beyond these practical matters, stock car racing, as a powerfully symbolic manner of celebrating the use-value of the automobile, found devoted fans in North Carolina. This atmosphere celebrating automobility, as centered in North Carolina, found patrons expressing enthusiasm for use of the automobile by driving to a racetrack and watching production based cars similar to their own compete.

[240] During the ten year span from 1955 to 1964, NASCAR staged 515 Grand National races, of which 179 or 34.84 percent were staged in North Carolina. Data from Fielden, Vol. 1-2.
[241] Data from Fielden, Vol. 1-4

Table 4: Number of Events 1949 - 1979 by State



This chart shows the heavy distribution of events in North Carolina and across the states of the southern Piedmont including South Carolina, Virgina, Georgia, and Alabama between 1949 and 1979.

Data Extracted From: Greg Fielden, *Forty Years of Stock Car Racing* , (Surfside, SC: Galfield Press, 1992), Vol.1-4

For the cultivation of devoted fans, the timing of the creation of a large stock car series could scarcely have been more fortuitous. As radio and television acquainted the South with the rest of the nation, working class whites in Dixie sought new symbols to help maintain distinct regional flavor. The birth of NASCAR in 1948 coincided with the beginning of a national push for civil rights with other, more fundamental threats to the established culture of the region. As lunch counter sit-ins, ranting segregationists, and televised confrontations between peaceful protesters and police in riot gear brought scorn upon the South, stock car racing found a solid fan base among the working class whites of the southern Piedmont.[242] As Dewey Grantham comments on the civil rights movement, “The Second Reconstruction was clearly the result of outside forces

[242] Dewey Grantham, *The South in Modern America: A Region at Odds*, (New York: Harper Collins, 1994), p.233.

impinging on the South."[243] For white southern workers, a group often manipulated with segregationist rhetoric, and historically most threatened by desegregation,[244] the thrill of racing created new symbols of white southern character and distinction. By the early 1960s, the equipment and superspeedways of NASCAR stock car racing were sufficiently evolved to help sustain the mythology of southern white supremacy. The sight of a mundane production "stock" racecar traveling at phenomenal speeds on the banks of a superspeedway suggested that stock car drivers could accomplish fantastic feats with ordinary equipment. Even if the competitors were not vehemently racist, or perhaps not even white, their exploits were carried out primarily for working class audiences in an increasingly Southern sport. For some, dramatic wrecks and hard fought finishes likely offered redemption for southern masculinity damaged by the lost cause, reconstruction and the unswerving march of the civil rights movement.

Other features of stock car racing were appealing to southern working class fans. A market study conducted for Ford at Darlington and Charlotte in 1963, found traditionally southern themes present among NASCAR stock car racing fans. In addition to exploring the role of violence, the study suggested that patrons were frequently disaffected working class men. A synopsis of this research reported that

> The findings indicate that stock car racing represents the American version of bull fighting whereby the fan achieves significant pleasure viewing the combined act of violence and competition. Violence if equated with accidents, bloodshed, and death, while competition is equated with drivers and or makes. Not surprisingly the dominant characteristics of the fans are youth, employment in subordinate jobs, and an extreme love and knowledge of automobiles, engines, etc. The great attraction of stock car racing to this group is the opportunity to release feelings which have

[243] Ibid., p.238
[244] Bryant Simon, *A Fabric of Defeat: The Politics of South Carolina Mill Hands, 1910-1948*, (Chapel Hill: University of North Carolina Press, 1998), p.219.

little chance to be expressed fully in the course of daily, and frequently dull, routines.[245]

This appraisal confirms Dewey Grantham's later assessment that, "Televised scenes of demonstrators being attacked with fire hoses and police dogs, reports of the bombing of black churches, and the beating and murder of civil rights volunteers shocked millions of people in the United States and reinforced the outside perception of the South as the nation's most violent and savage section."[246]

Though not exclusive to stock car racing or even racing in the South, violence during competition was embraced by Southern working class fans who accepted danger and violent behavior between contestants as normal, perhaps even praiseworthy. As John Shelton Reed suggests in *The Enduring South*, "the historical record and actual crime statistics suggest that Southerners do have a 'tendency to appeal to force' to settle differences and it may be supposed that they view such resort as more often legitimate than do non-Southerners."[247] Southern working class fans were perhaps more willing to condone, even celebrate, the violent nature of stock car racing. One survey published by Reed indicates that among all Southerners, urban uneducated skilled labor, the same sort of folks working on the weaving floors of Piedmont textile mills and in the bleachers at stock car tracks, were more likely to condone violence than their counterparts outside the South.[248]

---

[245] "Exploratory Research On Motivations and Characteristics Of Stock Car Racing Fans" (65/F-32-S), Ford Motor Company Archives, Motorsports Collection, Dearborn Michigan.
[246] Grantham, p. 321.
[247] John Shelton Reed, *The Enduring South: Subcultural Persistence in Mass Society,* (University of North Carolina Press, 1974), p.46.
[248] In this survey Reed shows that 69 percent of southern, urban, uneducated skilled labor favored corporal punishment in schools whereas 37 percent of Non-South urban, uneducated skilled labor favored corporal punishment. While there is some difference between wrecking an automobile while racing and spanking a child, the important similarity is an underlying acceptance of violent methods to achieve a desired end. See Reed, p.54.

As the Ford-sponsored study suggested, while outsiders condemned such violence, Southerners reveled in it. Harsh appraisals of southern violence, especially when broadcast nationally, could not have been lost on race fans.[249] Even as the superspeedways hosted their first events, in the political arena segregationist practices associated with the south were being beaten back by external forces. What better way to show indifference or defiance to opinions and initiatives from without, than attend a violent stock car race?

Celebration of such a contrast extended notions of transgression and rebellion in evidence at racetracks into the national arena. Though NASCAR stock car racing sprang from activities contrary to the sensibilities of Southern authority, it grew to symbolize Southern resistance to authority from without. As Pete Daniel writes, "… racing culture was characterized by a disrespect for authority that had been the underpinning of bootleg culture and the worldview of the working class."[250] Perhaps fans loved stock car racing because it was dangerous and violent in ways other sports were not, because, replete with racist imagery, it was dominated by white southern talent.

Another, more historical, coincidence used by race event promoters helped popularize regional distinction among NASCAR fans. Even as NASCAR stock car racing began to consolidate in the South during the mid-1950s, a fresh wave of nostalgia celebrating the centennial of the Confederate States of America brought symbols and discussion of the confederacy into the public sphere. Racetrack promoters brought this symbolism to NASCAR racing to sell tickets. Beginning in 1958, events began to carry names evoking the romanticism and racial legacy of the "lost cause." Thus, events known as the Rebel 300, Dixie 400, Mason-Dixon 200, Volunteer 300, and Southeastern

---

[249] Grantham, p. 240.
[250] Pete Daniel, *Lost Revolutions: The South in the 1950s,* (University of North Carolina Press, Chapel Hill, 2000), p.117.

250 came into being during the era of greatest racial tension across the southeast.[251] In keeping with this trend, during the late 1950s and early 1960, photographs of stock car races began to show more confederate battle flags flying among infield fans, Victory lane ceremonies now sometimes featured "Confederate honor guards" in gray uniforms sporting the confederate battle flag and race queens dressed as Southern Belles.[252] Though perhaps simply a nostalgic ploy staged by promoters to sell more tickets, the presence of these symbols in conjunction with political pressure from outside the region, and an increasingly regional schedule, helped cement the adoption of NASCAR stock car racing by Southern working class fans.

During the 1960s, the scale and speed of entertainment and spectacle afforded by the superspeedways helped finalize stock car racing as the chosen sport of the southern working class. Racing on the big ovals offered legitimacy to a sport struggling for recognition amid growing competition from more established stick and ball sports. The big ovals also helped NASCAR stock car racing achieve legitimate speeds and notoriety as compared to other forms of automotive competition. Huge crowds of loyal fans enticed and accommodated by the big tracks brought notoriety and revenue to the sport. The publicity generated interest and investment from automakers, even as the tracks required radical departure from strictly stock specifications for the racecars. Record numbers of paying fans guaranteed NASCAR's financial future, even as themes from the Old South also proved irresistible as a rallying point for egos bruised by externally orchestrated adjustments to the established social order.

With the withdrawal of overt factory support for racing teams after the AMA ban in 1957, NASCAR temporarily abandoned hopes for a national racing series with races throughout the nation. The southern states, which offered little in the way of competing

[251] Fielden, Vol. 2, 3.
[252] Fielden Vol. 2, 3, NASCAR News 1958-1970 *passim*, ISC photograph collection.

professional sports, or even amateur motor sport, were a logical place to regain momentum. Instead of building a championship with events in every state or even every region, a goal first defined at the formation of NASCAR, the National Stock Car Championship became a series contested mainly on southern soil. Though stock car races were sanctioned in 17 non-southern states during the first five years of NASCAR's existence, between 1955 and 1959 races were held in just nine states outside the South.[253] (See Table 2) During the next five-year period, from 1960 through 1964, cultivation of an eager fan base within the South continued, with a total of only 22 of 266 race events occurring outside the South. Concentrating NASCAR Grand National events in the South marked a logical return to a region with a tradition of support for production-based racing.

Review of the locations of races within the South suggests that the popularity of stock car racing below the Mason-Dixon line had less to do with broadly accepted moonshine and magnolia mythology than with the high concentration of willing fans in particular locales. It seems that NASCAR depended on the expanding disposable income of the emerging working class, a working class rooted in Piedmont textile mills rather than the rural South as has been occasionally suggested.[254] During its first thirty years, NASCAR staged no races in Mississippi, and but one race in Louisiana, both agricultural states without significant concentrations of industry. Instead, the heaviest concentration of races occurred in the mill country of the Piedmont. Between 1955 and 1964, over one-third of all NASCAR Grand National racing events were staged in the mill towns of North Carolina.[255] More than half of all NASCAR Grand National races conducted during the first thirty years occurred in the four states of Virginia, North

[253] Fielden Vol. 2, 3.
[254] Johnson, David M., *Encyclopedia of Southern Culture*, p.1241. like some other historians, Johnson suggests that "Throughout its history, stock car racing has been identified with rural white southern males."
[255] Fielden volumes 1-3

Carolina, South Carolina, and Georgia.[256] Significantly, these same four states contained the highest concentrations of textile weaving and spinning mills in the nation.[257] These mills offered a concentration of potential fans that became the core fan base for NASCAR.

Arranged parallel to the Appalachian Mountains and diagonally across Virginia, North Carolina, western South Carolina, and north Georgia into Alabama, the textile industry of the southern piedmont created the largest, most established industrial working class in Dixie.[258] In 1950, Davidson's Textile Blue Book listed 412 "cotton manufacturing" businesses in North Carolina.[259] In the same year, Massachusetts, the cradle of mechanized American textile production, had but 234 cotton mills.[260] By 1967, North Carolina had 994 textile mills of all types, while Massachusetts had but 381. Yet as textile manufacturing jobs moved South during the first half of the 20th century, the diversions possible for the workers in the North did not move with them. Without competition from professional football, basketball or major league baseball, southern laborers, some southern workers enjoying disposable income for the first time, found diversion at stock car races.[261]

Through the crucial years after NASCAR's initial foray into nationwide acceptance and before the onset of tobacco sponsorship in 1971, areas with the most cotton mills had the highest frequency of density of NASCAR stock car races. A map of "Textile Mill Towns" from 1955 shows strong correlation between NASCAR event venues and the textile industry. Towns like Rockingham, Martinsville, Charlotte, Darlington,

---

[256] Fielden
[257] *Davidson's Textile Blue Book*, (Ridgewood, NJ: Davidson's Publishing, 1950), p.302-335.
[258] Cobb, p.83-84
[259] *Davidson's Textile Blue Book*, p. 302-335.
[260] *Davidson's Textile Blue Book*, p. 272-284.
[261] The scale of stock car racing, and the strong attachment to the Piedmont fan base suggests that it offered strong competition with minor league baseball, a very popular diversion throughout North Carolina.

Weaverville, and Hillsboro, among others, all hosted multiple NASCAR events between 1955 and 1971, and all contained large textile mills. The distribution of races by county throughout Virgina, North Carolina, South Carolina, Georgia and Alabama suggests that the highest concentration of fans with an unlimited demand for stock car racing was the mill region of the Southern piedmont. Here, race promoters and NASCAR found a willing audience among working class white men seeking entertainment, redemption of identity, and escape.

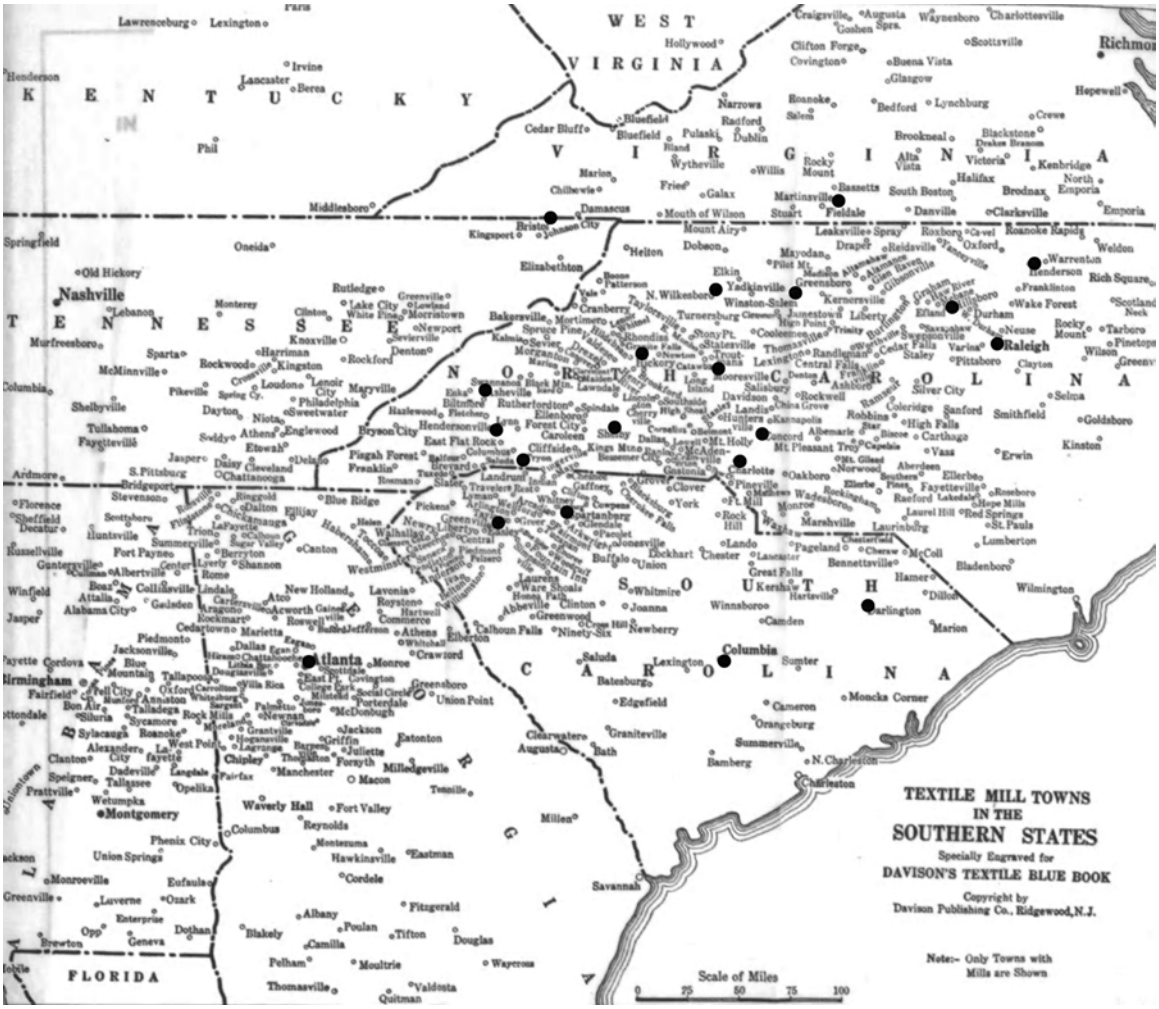


Figure 2: Map Showing the Concentration of NASCAR events across the Southern Piedmont, 1955 through 1969.

Map From: *Davidson's Textile Blue Book*, (Ridgewood, NJ: Davidson Publishing Company) 1958 edition

Data on event locations from: Greg Fielden, *Forty Years of Stock Car Racing*, (Surfside Beach, SC: Galfield Press), Vol.1-4.

The presence of such strong demand for stock car action helped keep the series credible after the manufacturers officially bowed out of competition in 1957. It also suggests that after trying to sell stock car racing to fans across the nation during the first few years of existence, NASCAR settled on the high concentration of loyal fans in the South. Whereas the primary focus of AAA and later USAC was the uniform sanction of races, NASCAR assumed the role of managing the forces and circumstances that determined the overall success of the entertainment format they regulated.[262] Such careful attention to the business side of sanctioning, the demographics of their fan base, and the needs of the competitors meant that NASCAR races consistently attracted larger crowds than competing stock car circuits. Part of this was an ability to keep paying fans returning to the track each week. The violent nature of stock car races, exclusively Southern flavor of events, and absence of significant competition from other sports made the South NASCAR's "breadbasket." The relative affluence afforded by these factors only increased the appeal of racing stars and the cultural gravity of events in which they competed. When Chrysler, Richard Petty's sponsor, boycotted NASCAR racing in 1965, he rejected the opportunity to compete elsewhere stating, "I definitely won't switch to USAC. I couldn't make a living running stocks in that group because they don't run for enough money."[263] Rather than sanction where promoters were willing or according to what might establish a uniform national reputation, NASCAR selected the location of events to assure full stands, and therefore big purses and top racing talent.

---

[262] "1955 AAA Contest Board Activity," AAA Correspondence, Smithsonian Institution Transportation Collection, NMAH, Washington, DC.
[263] Fielden, vol. 3, p.9.

Management of racing dates, as evident by the consolidation of races throughout the Piedmont, reflects the intent by NASCAR to embrace a base of loyal fans. Carefully choosing locations for races, and organizing the calendar of sanctioned events to promote sellout crowds rather than geographical dispersion, were crucial to the success and eventual regional association of stock car racing.[264] Though NASCAR events in Ohio, Pennsylvania, and even Long Island were well attended, in North Carolina the lack of entertainment competition meant that events could sell out consistently.

Development of a strongly loyal fan base was essential for the long-term success of NASCAR. Patrons across the Southern Piedmont who financially sustained the sport after the loss of industry sponsorship in 1957, now claimed it as a regional development. Part of this association with the South, the violent action accepted as a part of the sport, remained a controversial yet fundamental attraction. When NASCAR again began cultivating a national audience during the 1970s, it would be as a sport cast as a regional phenomenon.

[264] See Figure 2 – map of concentration of races in NC, SC, and VA

CHAPTER 4

THE SPIRIT OF COMPETITION MEETS RACING INNOVATION

Much of the financial and organizational success of NASCAR can be attributed to artful regulation of the racing technology employed in stock car events. Through years of skilled regulation of the applied native genius of competitors, NASCAR crafted a recipe for an inexpensive racing chassis and driveline well suited to the demands of stock car racing. Whereas in most sports, the sanctioning organization exists primarily to organize and satisfy the needs of the participating teams, from its creation NASCAR was clearly attuned to reaping benefit from the more theatrical and commercial aspects of the sport. From his days as a promoter, Bill France knew that funding for American racing depended upon attracting crowds of paying fans. This experience, and the American automotive environment of the 1950s and 1960s helped France influence technological development toward the pragmatic goal of maximum entertainment potential for the minimum cost. Indirectly, serving the interest of fans also furthered the interest of NASCAR's immediate constituents, the racers. Filling grandstands with paying fans assured profits for promoters and track owners, and pay for drivers, mechanics, and car owners.

Entertaining competition in motor sport involves a contest between a large field of cars with frequent passing on the track. As discussed earlier, this is difficult to accomplish when the cars in competition are dissimilar. Unfortunately for NASCAR, because of the inherent differences between the cars offered by auto makers, it was likely that one production model would prove itself best suited to winning races. Increased traction offered by the conversion of the sport to bigger asphalt speedways during the late fifties and early sixties only compounded the importance of dissimilarities in weight, horsepower, and handling between different models and makes.

Maintaining the interest and involvement of racers, sponsors, promoters, and fans required artful enforcement of rules constructed to give NASCAR the authority and flexibility to make stock racing a viable motor sport, and provide consistently close action for race fans. To accomplish this NASCAR developed a replacement for the chassis and engines built in Detroit, maintaining only the stock bodywork for outward recognition of the production origins of the car. Developing and implementing this "formula stock" design as a replacement for cars based primarily on production technology occupied much of the first 25 years of NASCAR's existence. By developing a racecar that looked like a production-based car but that was actually purpose-built, the regulating body gradually transformed stock car racing into a sporting contest, a promotional tool, and a form of entertainment. The "stock car" that was developed to suit these disparate needs, represents the crystallization of racing knowledge developed by competitors, racing technology borrowed from production vehicles between 1950 and 1975, and the promotional agenda of NASCAR.

Ostensibly a sanctioning body has complete discretion in shaping the sport it oversees, but there are constraints imposed by accepted practice. Beginning with early motorcycle races in velodromes at the turn of the century, Americans had been racing motor vehicles set distances on oval courses long before NASCAR was founded.[265] Instead of racing between two points, oval racing kept the action in front of paying fans, for a set number of revolutions around a circular closed course. This format permitted the development of racing as a spectator sport, but did little to ensure close competition.

Maintaining close competition was a task assumed by NASCAR. Racing automobiles in circles for set distances offered little latitude for adjusting race procedure to ensure entertaining action. As a result, the technical specifications of competition

[265] Roger Huntington, "Bombs on the Boards," *Speed Age*, September, 1952, p.36, Harry V. Sucher, *Iron Redskin*, Haynes, 1984. p.21.

vehicles set forth in the rules were intended to ensure closely matched capabilities regardless of brand name.

Establishing rules to maintain competition is not unusual. Rules define what actions constitute scoring, what actions draw penalties, and the physical and temporal parameters of competition. Rules also describe what equipment may be used in competition. Enforced equity among competitor's equipment is what distinguishes sporting contests from exhibitions. Uniform procedure and equivalent equipment facilitate outcomes determined by the successful application of skill, stamina, and strength. Such uniformity also helps foster participation and fanship by establishing regular, understandable sporting events. For sporting enthusiasts and beginners alike, uniformity of rules also encourages comparison between contests and contestants in different places and times.[266]

Though material uniformity is theoretically possible in auto racing, regulation is problematic because of the complexity of the technological systems that comprise the sporting equipment. In contrast with a tennis racket or basketball, there is vast opportunity to gain "sporting" advantage by manipulating the complex systems of the racecar and its attending equipment. Racing series using purpose built cars often followed a "formula"[267] that typically specified parameters such as minimum weight, maximum engine displacement, and maximum wheelbase.

---

[266] For example, a runner with long legs might have an advantage over a runner with short legs, but they both run the same distance, and are timed with equivalent watches. Even if the long-legged runner is consistently faster, he/she is not forced to carry extra weight, or run farther, or be timed with 65 second minutes during the race. Thus, though the runner's performance might be very different; though one runner might be much faster for much greater distance, the parameters experienced by each runner in competition would be the same.

[267] The term "Formula" as used in racing is a set of specifications that define the cars in a specific series. They typically define engine size, wheelbase and weight. As knowledge of other factors such as tires and aerodynamics grew during the 20th century, the number of standards composing most formulae also increased.

Racing that uses production-based equipment offers greater challenges for regulation. The paradox of keeping the equipment roughly equal while allowing cars to come from different manufacturers cannot be resolved without heavy manipulation of the technical criteria of the cars. In the early decades of stock car racing, where vehicles were built to intentionally differentiated designs, such a formula was not practical. Unless the formula varied for equipment from different automakers, most of the racers would likely choose the one make of car closest to the design parameters. Effectively mandating a single model for competition would negate an important advertising dimension of stock car racing. Though true uniformity in equipment might better demonstrate the skills of a driver, it would deprive a stock car racing series of much of the promotional lure that kept manufacturers involved financially. NASCAR's gradual transition to a "formula stock," purpose-built car that maintained the silhouette of the production vehicle encouraged both close competition and the promotional aspects of the sport.

In most sporting contests a degree of enforced parity does not rule out vastly different performances. But for the most part, because of the simple nature of the equipment employed, vastly different performances are the exception. In addition, significant thresholds determined by ability and experience limit the possibility of beginners competing against well trained, well conditioned, experienced athletes. Typically, a competitor must become an experienced amateur, before becoming professional. Furthermore, seldom do amateurs enter the professional ranks with top ranking. But because of the significant role that equipment in competition, these thresholds are less in motor sport.

Consistent disparity in professional sports, especially professional sports that depend heavily on significant capital investment and revenue from spectators, can be devastating for competitors, owners and sanctioning bodies alike. Consistent disparity

between competitors can drive fans away, or at least create less dramatic action. NASCAR, in order to build itself as a form of entertainment, took steps to guarantee, insofar as possible, close competition. This was accomplished by gradually extending control over the technical specifications of the sporting equipment used in competition. For NASCAR, the complicating factor was the obvious and necessary dissimilarity between the equipment used in competition. Though promotional considerations made it vital to maintain a variety of vehicles on the track, keeping competition close was a fundamental objective for NASCAR from the beginning. For automakers the marketing leverage offered by claiming that their stock model outperformed similar models from a competitor was considered very valuable.[268] Similarly, NASCAR could also not resist advertising that its races served the public interest by offering a "laboratory for Detroit" to test its new cars.[269] For this great laboratory to be valuable as an advertising asset, and more dramatic for fans, it was essential to have a variety of automakers represented.

NASCAR president Bill France understood that if the resources of a single automaker were applied to the problems of winning races, competition between different cars (and therefore ticket sales) would suffer. He was interested in moving his sanctioning organization beyond the role played by those groups that preceded NASCAR.[270] With control over the equipment, parity between competitors could be assured, but the symbolic reference to genuine production had to be maintained. In the end, this meant that NASCAR stock car racing was spectacle intended to relate the virtues of automobiles that were utterly unlike those on the track. However, before NASCAR had enough momentum to generate a car that was wholly original to stock car racing, support from automakers was essential.

---

[268] Hudson Ad copy, 1953, 1954,Chevrolet Ad copy, 1955, Ford, 1957.
[269] Harry LeDuc, "Detroit is Stock Car Natural, *Speed Age*, September 1952, p.98, Bill Tuthill, "A Racing Secretary Analyzes Racing", *Speed Age*, March 1950, p.26.
[270] "Minutes of First Meeting," ISC archives, Daytona Beach

France displayed artful use of diplomacy, bluff and strategy as he struggled to maintain enough interest from automakers to help subsidize the sport, without fostering so much interest that NASCAR might lose control over stock car racing.[271] As *Motor Trend* writer Eugene Jaderquist related in 1952, "Detroit's attitude is of primary importance to you and NASCAR. Bill France does not want direct factory participation because the huge bankrolls and skilled engineering staffs would put the small owner out of business."[272] France recognized that factories were too hard to control, and that if one factory was dominating events too completely, the others would likely leave. After all, in order for winning races to have positive effect in the market place, the cars had to be competing against other makes.

What NASCAR did want was modifications useful to racing to appear in mass production form. In that way, they would be available to all racers, not just those on factory race teams. Paraphrasing NASCAR's president, Jaderquist writes,

> Bill cites the 22-gallon gasoline tank available on the Henry J as an example of Detroit's proper attitude toward his races. Few Henry J owners need that much reserve, but it means one less pit stop for a Henry J driver. Ford now lists an optional valve timing, something that you and I may never use but which is very helpful to the Ford competition driver. [273]

If options were available through mass production, if they could be ordered through the dealer and were thus available to considerable numbers of competitors, then NASCAR was happy to accept them. It is unlikely that the 22 gallon gas tank used by Kaiser or the alternate valve timing available from Ford were intended to meet the needs

---

[271] Smokey Yunick, *Best Damn Garage in Town: The World According to Smokey,* (Daytona Beach: Carbon Press) 2001, Vol.2, p.56-58.
[272] Eugene Jaderquist, "NASCAR Primer," *Motor Trend*, May 1952, p.18.
[273] Ibid, p.46

of NASCAR competitors.[274] Claims that stock car racing was related to any sort of factory research and development races only enhanced the status of NASCAR.

Though ultimately France's position would have the effect of democratizing high performance technology, his original intent was to discourage direct factory participation in racing. Jaderquist continued, "What [Bill France] does want is: (1) more factory recognition of the value of stock car racing, both as a promotional device and as a testing ground for engineering ideas, and (2) better relations between factories and drivers." [275] Jaderquist suggested that factories interested in promoting their wares by supporting existing drivers would find welcome reception in NASCAR. While NASCAR was a fine place to promote vehicles and drivers, it was not practical for automakers to test new models on racetracks. The outcome of such tests was far too public, and the modifications were far too extensive to return any real design data. Furthermore, using NASCAR Grand National stock car racing as a "testing ground for engineering ideas" was, at best, inefficient. Since the NASCAR rules dictated that an item be in production before it was legal for use in competition, engineering testing could only occur on a relatively limited number of components that would have already been engineered. There was no economic incentive to put untested ideas into production in order to test them on a track. As the 1952 NASCAR rule book states, "In all specifications the word "stock" shall be defined as meaning any part which is listed in the manufacturer's catalog for the year model and type of car entered."[276] Though this rule would ultimately be circumvented by manufacturers through supplemental additions to parts catalogs, in this context NASCAR meant that legal parts had to be mass-produced. It was unlikely that a mass producer would invest capital in tooling to produce any new technology for testing at a stock car race.

---

[274] Ibid.
[275] Ibid., p.46
[276] NASCAR, *1952 Stock Car Racing Rule Book*, (Daytona: NASCAR, 1952), p.7.

Optimally for NASCAR, factories would provide capital and let the racers do the racing. In addition to providing one more link in any feedback mechanism that connected the supposed test bed of the race track with auto factories, the use of experienced racers would have telling impact on the pace and direction of technological innovation. Racers did not have the resources to effect radical shifts in the technological trajectory of NASCAR's version of a production-based racecar. Racers could also be more easily controlled. If innovations were found to be unacceptable, racers had little recourse other than returning their cars to legal configuration. Racers were less likely to stray too far technologically as few could afford to rebuild a car found illegal because of radical innovation. What resulted was incremental technological development forever constrained by the demands of presenting the sport of stock car racing as entertainment. It was an unusual dialectic based on the materials, skills and knowledge available to racers and the necessity of producing entertaining racing.

There were also financial considerations influencing the creation and enforcement of the stock car rules. The racers themselves were interested in durable, inexpensive equipment that could win races. If the rules kept the cost of competing low, more racers had a shot of making a solid career on the track and NASCAR had a good chance of filling the track with lots of competition.

Bearing these processes and issues in mind, it is useful to reconsider the fundamental paradox shaping the perspective of NASCAR. In order to maintain fan interest, NASCAR-sanctioned stock car races had to provide exciting competition. Exciting competition typically involved close racing between numerous, fast cars. In order to claim that it was a stock car series that might enjoy the benefits of vicarious association by fans and possibly attract the financial support of automakers, NASCAR had to allow a diverse field of cars to compete. To create this illusion, as time wore on it became necessary to build a special formula for the NASCAR stock car that could,

chameleon like, have its exterior tailored to accommodate different body work, but whose vital mechanical components were equal across all competitors. Fortunately for NASCAR, during the formative years of their sport, oligopolistic practices of the American auto industry rendered cars that were different, but not dramatically dissimilar. For the most part they were heavy, front engine, rear wheel drive with wishbone and coil spring front suspension, and straight axle leaf spring rear suspension. Though suited to the demands of mass-production, and the needs of most car owners, this design was not optimal for stock car racing. It was not durable enough, did not permit fine tuning at the track, and was not sufficiently rigid for use on asphalt tracks. Between 1949 and 1979, NASCAR borrowed innovations made by competitors to standardize the mechanical components of the American stock car.

As racers found solutions to problems through experience and experimentation, they were subjected to the scrutiny of NASCAR inspectors and their peers. Where adaptation, construction or innovation was found to be in keeping with the spirit of the rules, it was accepted as conventional practice by racers and officials. Frequent personnel shifts among the stock car racing community and the close physical proximity of competing cars at the race track meant that innovations, once past technical inspection, were quickly disseminated.[277] When substantial new conventions were established, NASCAR would loosely describe the innovation in the rule book issues the following year. In the NASCAR rule book, however, the greatest attention and specificity about recent innovation was given to new conventions intended to enhance safety.

[277] Currently known as the ‘‘Silly season’’ the winter lull in stock car racing has customarily been a time when mechanics, fabricators, crew chiefs and drivers move between teams in hopes of finding a better situation. Such fluidity among NASCAR teams is not a recent development. Pioneer stock car mechanic Smokey Yunick worked for Hudson, Chevrolet, Ford, and Pontiac between 1951 and 1971. Some mechanics like ‘‘Suitcase Jake’’ Elder enjoyed epithets coined during frequent shifts between team.

As this process continued over the years a near perfectly appropriate system of technologies evolved. During 1951, for instance, Ford truck pattern wheel hubs became the equipment of convention on stock cars. In 1957, NASCAR mandated carburetor induction and the Ford Galaxie front suspension arms, which later became the standard, emerged. By 1979, the only production parts of a NASCAR stock car were the hood, roof and trunk.[278]

Initially the NASCAR rules mimicked the standards for strictly stock established by the AAA. In the 1948 AAA rule book, stock designation was possible only if, "A car of a type usually sold to the general public by a manufacturer and conforming to the Contest Board stock car specifications." [279] Borrowing the notion that truly stock items would be recognizable through their presence in manufacturers catalogs, the first NASCAR designation of a stock component stated that, "In all the above specifications the word "Stock" shall be defined as meaning any part which is listed in the manufacturer's catalog for the year, model and type car entered."[280] Over time, piece by piece, conventions were built as parts of the NASCAR stock car were replaced with stronger components borrowed from larger sedans and trucks or created by aftermarket specialty manufacturers to meet the demands of stock car racers.

These changes generally helped create closer competition by either shoring up flaws revealed through racing action or universally implementing production technologies from a single make of vehicle proven to be better suited to racing. When competition required innovation outside the purview of normal production, France relied on several

---

[278] Dr. John Craft, *The Anatomy and Development of the Stock Car*, (Osceola, WI: MBI, 1993), p.117.
[279] American Automobile Association Contest Board, *AAA Official Competition Rules 1947*, (Washington, DC: American Automobile Association, 1947), p.9.
[280] NASCAR, *1948 Stock Car Racing Rule Book*, (Daytona Beach: NASCAR, 1948), p.3.

important tenets to allow both complete regulation and public acceptance of innovation by racers.

Most importantly, the cars had to maintain “stock appearance.” In addition to being clean, painted and having reasonably straight bodywork, from the beginning cars had to at least appear to be stock. If the association between stock car racing and the cars rolling off assembly lines was to be maintained, if the vicarious association between cars and drivers on the tracks and the cars and driving of fans promoted, and if the widely repeated notion that stock car racing improves the products of American automakers; the exterior resemblance had to be maintained. If a car looked like a production vehicle from the grandstands, then potential consumers could easily believe that it was truly a product of mass production. In this way the specialized racecar could fulfill the suggested performance of real production cars in front of crowds of potential consumers.

Initially the rules designated that the car maintain original exterior parts and trim. The Grand National section of the 1950 NASCAR rule book stated that the vehicle must retain all fenders, bumpers, chrome and glass.[281] Later, in 1956, the rules changed, simply demanding that all vehicles “Maintain Stock Appearance.”[282] This mandate would persist as a feature of NASCAR Rule Books until 1974. The suggestion of truly stock was important enough that, after a notorious clash over the profile of one Chevrolet built by Smokey Yunick in 1967, the profile of NASCAR stock cars was checked against a template made from a legitimate production car. Implemented to maintain aerodynamic parity, this rule also restricted just how far from stock profile the bodywork of a NASCAR stock car could be. For NASCAR, the proportion and exact configuration was essential.

---

[281] NASCAR rule book, 1950.NASCAR, *1950 Stock Car Racing Rule Book*, (Daytona Beach: NASCAR, 1950), p.8.
[282] NASCAR rule book 1956 NASCAR, *1956 Stock Car Racing Rule Book*, (Daytona Beach: NASCAR, 1956), p.9.

Even though the chassis was a bastard conglomeration of production components, the body panels had to be genuine and they also had to be proportioned and aligned to present the illusion of a legitimate factory-stock car.

Beyond the primary importance of cultivating the association between the cars on the track and cars on the street, there were important reasons for maintaining stock appearance. Mandating stock appearance was initially intended to clearly differentiate Grand National Stock car racing from other, extant forms of stock car racing. Because of the shady reputation of stock car racing at the time of NASCAR's founding, NASCAR was eager to distance itself.[283] The most dramatic way to demonstrate the distinction between NASCAR stock car racing and the production-based racing that preceded it was to race current "new" cars that appeared completely stock. Before the formation of NASCAR, the term "stock car racing" covered nearly any form of motor sport dependent on production based cars. Though some of these early "stock car" races were well regulated, well promoted, and featured close contests between skilled drivers, more often than not, they were regarded as a marginal form of motor sport.

Before NASCAR, stock car races were often disorderly, dangerous and potentially corrupt undertakings.[284] Many early "stock car" races were contests between jalopies, held on small dirt "bull rings" without benefit of codified rules or competent and scrupulous race officials. Among racers, the epithet "stock car" also carried a pejorative tone garnered through association with rough, dirty races on smaller, ill governed tracks. These tracks most often featured cars of "stock" origin, that were older, heavily modified, and often all but completely "used up." Marginalized as the lowest, meanest form of

---

[283] The Gravel Pits, *Speed Age*, February, 1951, p.50.

[284] The assertion that stock car racing before NASCAR was a haphazard affair, is substantiated by the comments of racers at the initial meeting of NASCAR, as well as quotes in Curtis "Crawfish" Crider, *The Road to Daytona*, (Ormond Beach, FL: the author, 1987), p.27-30. Humpy Wheeler interview, "Speed and Spirit", February, 2001.

racing, pre-war stock car racing frequently attracted crowds of less than upstanding reputation. As veteran dirt track racer Russ Truelove describes it, “Every Saturday night there was a fight, and sometimes a race broke out.”[285]

From the perspective of NASCAR, an exterior closely resembling production automobiles was essential to legitimacy as a sanctioning body. In addition to helping make the case that the cars on the track were just like those on the showroom, a stock appearance helped build the association between fans and the sport. Strictly stock appearance, achieved through use of production car body panels, helped present a vast field of tidy racecars and facilitated vicarious association with the competitors. By highlighting racing competition between brands, NASCAR encouraged fans to choose a make of vehicle to cheer for.[286]

With increased factory participation during the 1950s, stock-appearing bodywork on the racecars was the “meal ticket” for NASCAR stock car racing. During the first quarter-century, this external resemblance to production stock was carefully maintained. Though the exterior remained stock by production standards, changes in materials and construction techniques permitted subtle gains in performance. By the mid 1960s, bodies made available to racers were built from thinner, lighter stampings.[287] During the Ford “Total Performance” years, new, dedicated tooling stamped duplicate aluminum body trim where stock components proved too heavy. The exact location of bodywork on the chassis could also be altered to enhance performance as long as the silhouette remained the same. By the mid 1970s, hand-made panels closely resembling stock

---

[285] Russ Truelove interview with the author, Jonesboro Georgia “Peach Bowl” reunion, February, 2000.

[286] “Exploratory Research On Motivations and Characteristics Of Stock Car Racing Fans” (65/F-32-S) Ford Motor Company Archives, Motorsports Collection, Dearborn Michigan.

[287] Alan Girdler, *Stock Car Racers*, (Osceola, WI: MBI) 1988, p.90-91. In an interview with the author, Fireball Robert’s fiancé Judy Judge described how easily the fenders of the 1964 Ford Holman Moody racecars caved in. See also, Craft, p. account of Lee Petty.

sheet metal began to replace doors and fenders. Even when chassis design bore no resemblance to actual production vehicles, in order to be legal for competition, dissimilarities that existed between a true production car and a "stock" car had to be covered with stock "appearing" bodywork.[288]

Innovations made by racers could also become conventions if they were in the interest of safety. The moral dimension associated with technologies that might enhance safety permitted very broad interpretation of the term of "strictly stock." Few critics were willing to argue that stock cars should remain less safe in order to be truly stock. (And fewer critics still were willing to suggest that the safest course was not racing at all.) To maintain a positive public image, keep fans interested, and attract competitors, NASCAR presented racing action that was dangerous enough to attract fans, but not so dangerous as to discourage competition or prompt public rebuke. For NASCAR as an institution, it was crucial that, despite possible increase in danger brought about by higher speeds and closer competition, adjustments to the race vehicles made in the interest of safety also kept competition close and very fast.

Acting in the interest of safety most often associates an institution with convincing claim to the moral high ground. Indeed, public demand and the danger of bad publicity encourage associations like NASCAR to work towards safer racing. Claiming the responsibility for managing the creation and improvement of safe racecars was an integral part of the NASCAR sanctioning mandate.[289] As early as the first meeting at the Streamline Motel, and in many press releases and advertisements after the formation of

---

288 Increased competition during the early 1960s, and the return of direct support from manufacturers led to the creation of thin or otherwise lightened bodywork using original production tooling. By the end of the decade factories were producing special purpose tooling to make lightweight aluminum replacements for heavy chrome plated, die-cast trim parts.

[289]John Painter, "NASCAR Prexy Talks," *Speed Age*, August 1954, p.55, Eugene Jaderquist, "NASCAR Primer," *Motor Trend,* May 1952, p.19. Britt and France, p.19., Al Berger, "Mr. Stock Car," *Speed Age*, February 1958, p.58.

NASCAR, safety consciousness was a prevalent issue. Assumption of this responsibility allowed NASCAR broad latitude in bending the notion of "stock" production vehicle around the demands of safety. From the beginning, cars were altered in ways expected to help make them safer. Because no systematic analysis exists detailing which "safety" improvements actually worked and which did not, the safety evolution of the NASCAR stock car was largely an issue of increasing the strength of existing components.

Weaknesses and subsequent failures were most often brought to the attention of competitors and NASCAR through dramatic, and sometimes fatal, crashes. Though this sort of empirical testing using human subjects seemed perhaps harsh, this was the accepted practice in determining the limits of car design in all forms of motor sport. Indeed, racing with too much safety, without a definite element of danger, would likely have been less appealing as entertainment. Admiration for performance in the face of danger did not, however, promote haphazard construction of the automobile. Racers wanted to race because it was dangerous, not because it was deadly. Though perhaps brave, they were not stupid and did not allow the lessons of wrecks, component failure, injury and death to pass unnoticed. Unlike automakers before 1963, when the first formal automotive crash testing began, NASCAR and competitors paid attention to the empiricism around them and usually followed up such costly lessons with design changes intended to remedy the design weakness.[290]

Some fans, like Larry Gilham, were critical of design changes made in the interest of safety. He wrote a scathing letter to a national motor sport magazine dismissing NASCAR as a sham because it permitted the use of Ford truck hubs on Hudson stock cars. "Certainly the Ford hubs aren't stock," this angry fan wrote in reference to one race-winning Hornet.

---

[290] Joel W. Eastman, *Styling vs. Safety: The American Automobile Industry and the Development of Automotive Safety, 1900-1966*, (Lanham, MD: University Press of America, 1984), p. 223-225, p.76, Al Berger, *Speed Age*, February 1958, p.58

> Probably they are allowed under the provision 'in the interest of safety.' Sure it makes them stronger and safer, but it seems to me that when you alter or change a feature it ceases to be stock . . . stock seems so elastic. It also seems such a short distance from hi-compression heads, four and five carburetor manifolds, and 3/4 and more radical grind cams – all in the interest of safety. [291]

Mr. Gilham rightly identifies the flexibility of rules that permitted such broad technical latitude. NASCAR was not about to let a concept like the true definition of a "stock car" get in the way of regular, profitable competition.

The Ford hubs referred to in Mr. Gilham's letter were indeed not a stock part on a Hudson Hornet. Rather, they were a modification commonly applied to contemporary "Modified" racecars to increase the strength of wheels, hubs and brakes. Since the rules said that "It is recommended that wheels, hubs, steering parts, radius rods and sway bars be reinforced and strengthened in any manner" to ensure safety, the Ford truck hubs were legal even if they were not stock.[292] Apparently the Hudsons were prone to rear axle failure so catastrophic that it "launched the car end over end" in a dramatic and potentially fatal roll.[293] With inadequate hubs replaced, Hudson, the first automaker to respond to the promotional potential of NASCAR stock car racing, could remain an active participant in NASCAR events. Though little could be learned and applied to production vehicles, use of Ford truck hubs simultaneously satisfied the interest of racers, NASCAR and Hudson. For racers, the fix was familiar and inexpensive. For NASCAR, the fix kept cars safely in competition on the track. For Hudson, ad copy need

---

[291] Larry Gilham, "Strictly Stock, *Motorsport Magazine*, February 1952, p.4. A "3/4 grind" cam typically offers performance between stock and full race.
[292] NASCAR, *1950 Stock Car Racing Rule Book*, (Daytona Beach: NASCAR,1950), p.15.
[293] Yunick, p.37, Smokey was Herb Thomas' mechanic for the 1951, 1953 and 1955 Southern 500.

not mention that the first place finish in Daytona was achieved using parts engineered in Dearborn.[294]

Ironically, the modifications that provided greater safety for NASCAR drivers, also frequently made racing faster. Though NASCAR ostensibly permitted modifications or reinforcement of suspension and steering parts in order to promote safe racing, it seems likely that a desire for enhanced speed helped motivate this decision. It is important to note that if the hubs were strengthened to not fail, rather than to fail safely, cars could go faster, and competition was more likely to remain close. Such augmentation was typically accomplished by substituting, as in the case of the wheel hubs of the Hudson Hornet, stronger stock components from a heavier car or truck. Where the substitution of production components was not practical or possible, simple construction techniques were employed.

Gradual changes engineered by NASCAR participants were not always only about safety. The chassis stiffening protective roll cage, for example, had the net effect of making racecars faster, safer, more evenly matched and more durable. Even Bill France did not try to separate the combined safety and speed benefits possible with a roll cage.[295] "The biggest reinforcement to the frame is the addition of roll bars," he wrote in 1963, "Primarily they are intended to protect the driver in case of a roll-over or other mishaps. These stout steel bars, padded after placed in position, also add rigidity to the automobile." Despite this admission, NASCAR never elaborated on how a roll cage made a vehicle decidedly un-stock. In 1953, the "Specifications for Grand National Stock Cars" stated that "Roll-over bars inside car are optional but recommended" on most models and "compulsory in hard-top models with no center door panel to support

[294] Roger Huntington, "Detroit Corner," *Speed Age*, December 1952, p.48.
[295] Britt and France, p.75

roof".[296] By 1955, roll bars were compulsory in all cars, and NASCAR began providing pictures describing how best to install a roll bar in a sedan. In 1957, NASCAR rules required that car builders install a "roll cage" inside the passenger compartment, and that "Roll bars must be padded and taped with foam rubber from bottom of left window to center of top," that part of suggested cage nearest the driver.

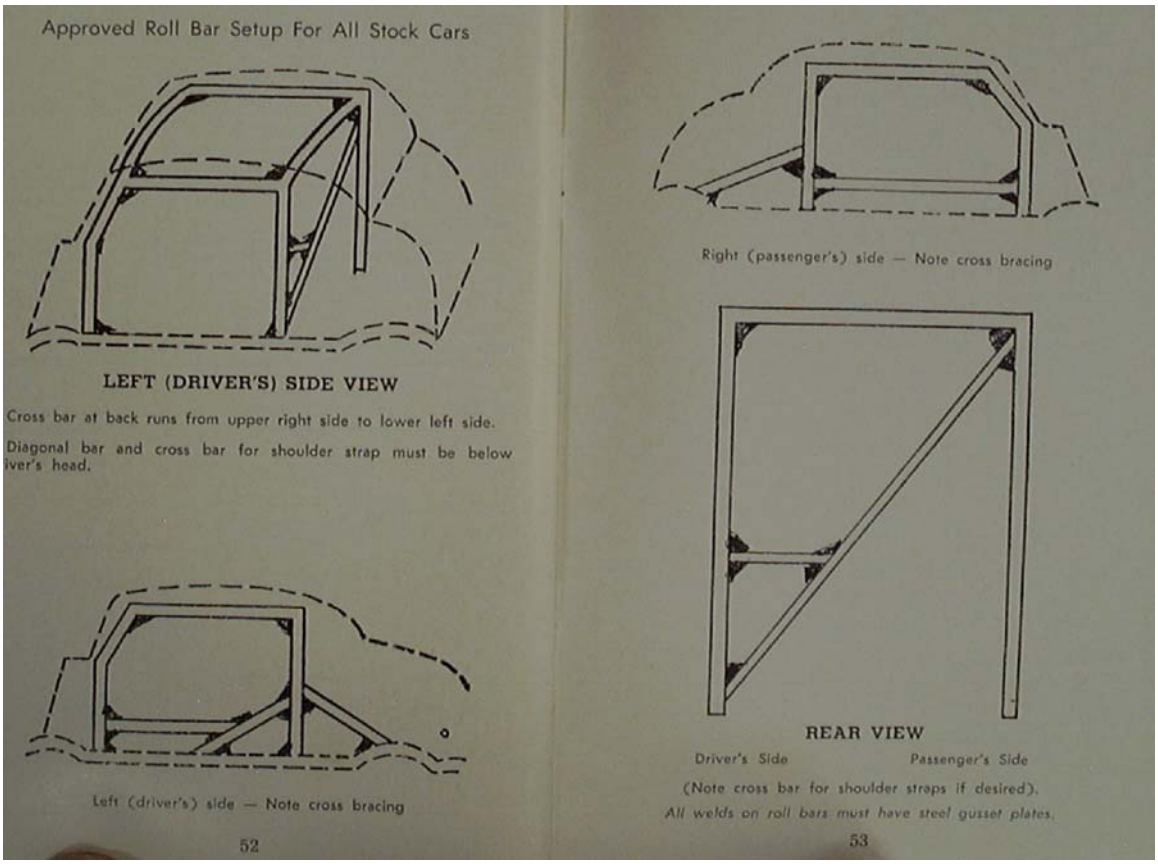


Figure 3: Roll Cage from the 1960 NASCAR Rule Book

Image courtesy: International Motorsports Hall Of Fame archives, Talladega, AL.

In 1960, NASCAR specified the exact type of tubing and method of construction. The rule book states that, "Roll bars must be welded, and must be not less than 1 3/4

[296] NASCAR, *1953 Stock Car Racing Rule Book,* (Daytona Beach: NASCAR, 1953), p. 23.

inches in outside diameter and walls must not be less than .090 inch thick. No pipe fittings allowed." A few years later, the cage design was strengthened through the addition of thick steel gusset plates at each welded connection. Over the course of a decade, NASCAR had mandated that all cars have identical cages built from standard generic components.

Over time the cage would grow to match the experiences and needs of NASCAR. The development method employed was somewhat crude. Typically it involved reactive amendment to existing practice spurred by catastrophic or deadly failures. As stock car driver turned builder, Ralph Moody, comments,

> They wanted stock cars, but if you are running 100 miles an hour in a stock car and something happens, you get killed. You *have* to put safety equipment in it. I can remember when we took two Thunderbirds, one for Curtis Turner and one for Joe Weatherly at Darlington, and the rules said you had to have doors with hinges on them. You could close the door and put two slabs of iron [with] bolts through it around the doorposts. Hell, you were always ripping those damn doors off. Guys were sitting with no protection, didn't have any sides, just a roof and a top. And they'd just squash the car. I kept saying that I was going to install a roll bar, put the loop on top, side bars, brace bars, cross bars, and three high-door bars. We went to Darlington, and the NASCAR officials made us take it off. Afterward we went to Atlanta, and Nelson Stacey got hit, a car broke right through, busted up his pelvis, legs, ribs, goddam about ruined him. Then they decided, 'What did you do there? Let's look at that.'[297]

Such bloody empiricism was common in motor sport, but was influenced by the demands of maintaining a stock façade. In the case of the roll cage described by Ralph

[297] Peter Golenbock, *American Zoom*, (New York: Macmillan, 1993), p.115

Moody, the safety modification initially violated the stock appearance and was disallowed. Only after serious injury from competition was the modification accepted.

In 1964 and 1965 the NASCAR cage design gained more protective bars and more structural strength as bars were added to the cage at seat height, and stiffening diagonal bars were add to the rear of the chassis.

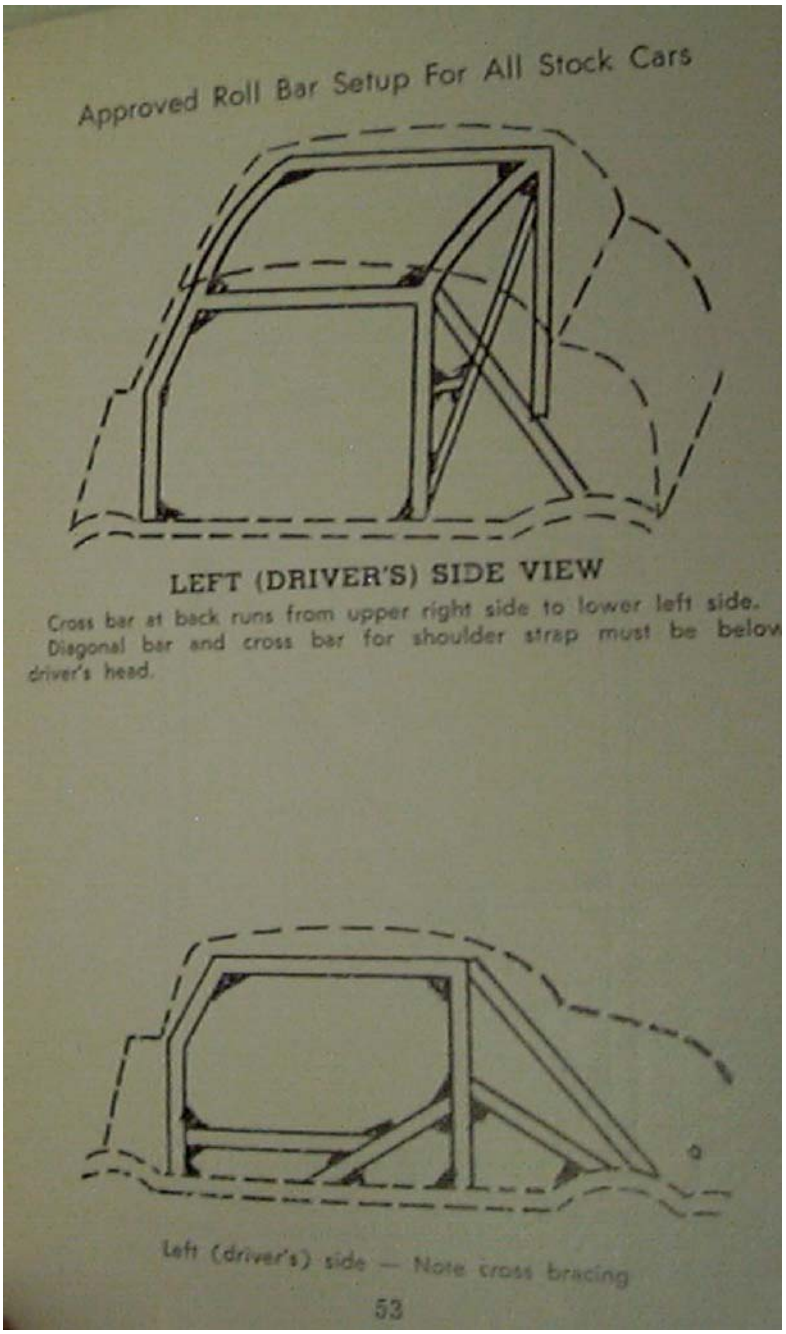


Figure 4: Roll Cage from the 1963 NASCAR Rule Book

Image courtesy: International Motorsports Hall Of Fame archives, Talladega, AL.

By 1967, the cage had grown still more elaborate, with a protective grid of bars in each front door to protect the driver, and more diagonal superstructure stiffening the chassis from front to rear.

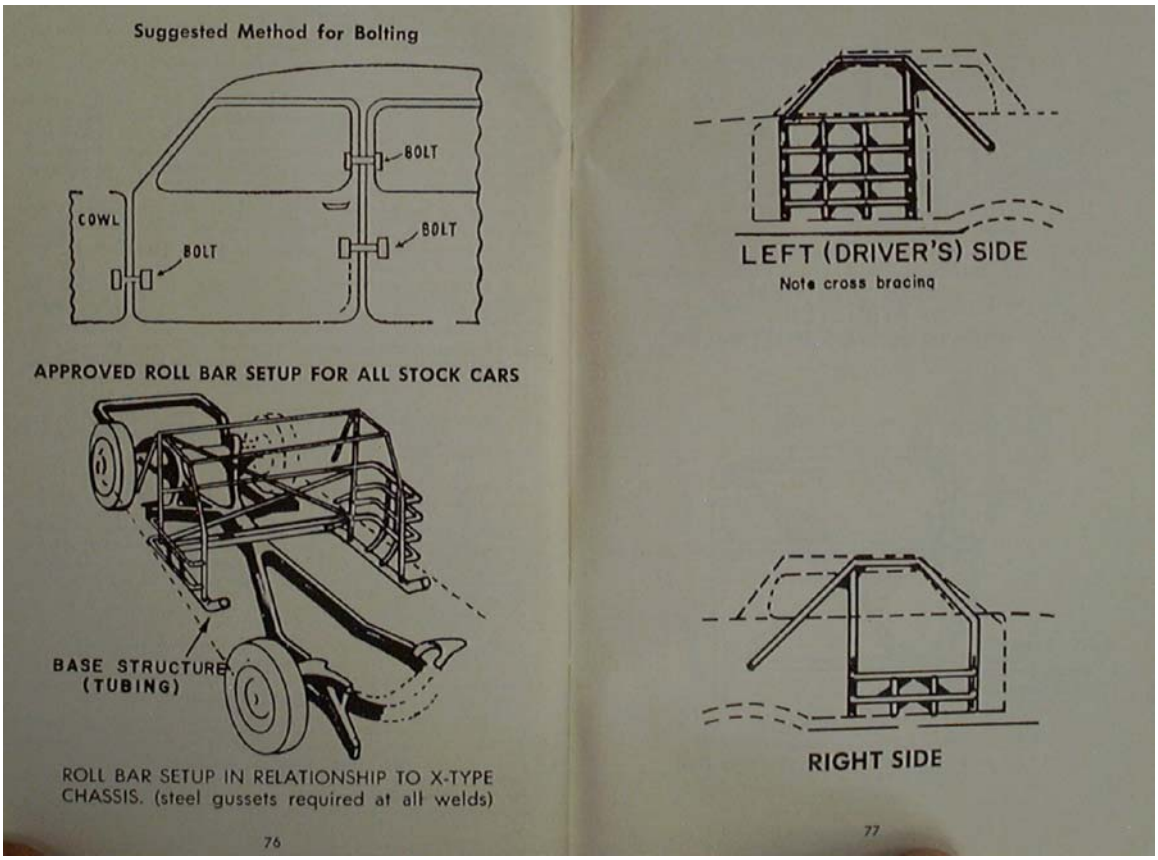


Figure 5: Roll Cage from the 1967 NASCAR Rule Book

Image courtesy: International Motorsports Hall Of Fame archives, Talladega, AL.

The use of diagonals from the top of the roll cage to the frame above the rear axle effectively turned the chassis of the stock car into a simple truss. This design offered more protection of the fuel tank area and considerable stiffness to the rear of the car.

As was suggested in the letter concerning the use of Ford wheel hubs on Hudson racecars, safety engineering can influence more than crash survivability for the driver.

Stiffness in chassis design offers greater structural protection for the drivers, and a more predictable basis for chassis tuning. The structural integrity lent by the ever increasing roll cage reduced the number of variables in tuning a chassis. As the protective roll cage removed twist from the stock frame, other components became the focus of tuning. The rigid trussed chassis offered racers the ability to predictably alter the behavior of the rear chassis of a car through adjusting spring compliance and shock absorber rates. While this did allow a higher degree of tuning and closer competition, it further invalidated any association between performance on the track and true production vehicles.

A stronger, stiffer chassis also helped keep competitive racing action on the track. A cage built as suggested in the diagrams supplied in the Rule Book was less likely to fail completely in the event of a minor on-track incident. As the cage increased in size and complexity to protect the driver and vital mechanical components of the car, terminal mechanical failure from wrecks became less common. The robust chassis resulting from a substantial cage meant that cars could more easily be repaired and returned to action during a race. In contrast to other forms of motor sport, racers could often win points and money after crashing during the early stages of an event. Such durability meant more opportunities to finish well for competitors and more racing action for fans.

The net effect of adding bars to the cage design in the interest of safety was to create a specification for a chassis that simultaneously suited the needs of NASCAR, race promoters, and racers. By 1973, the web of bars protecting the driver and stiffening the car had reached full development. [298]

[298] Wheelbase changes in 1975, 1979, and 1982 changed the overall chassis dimensions, though not substantially.

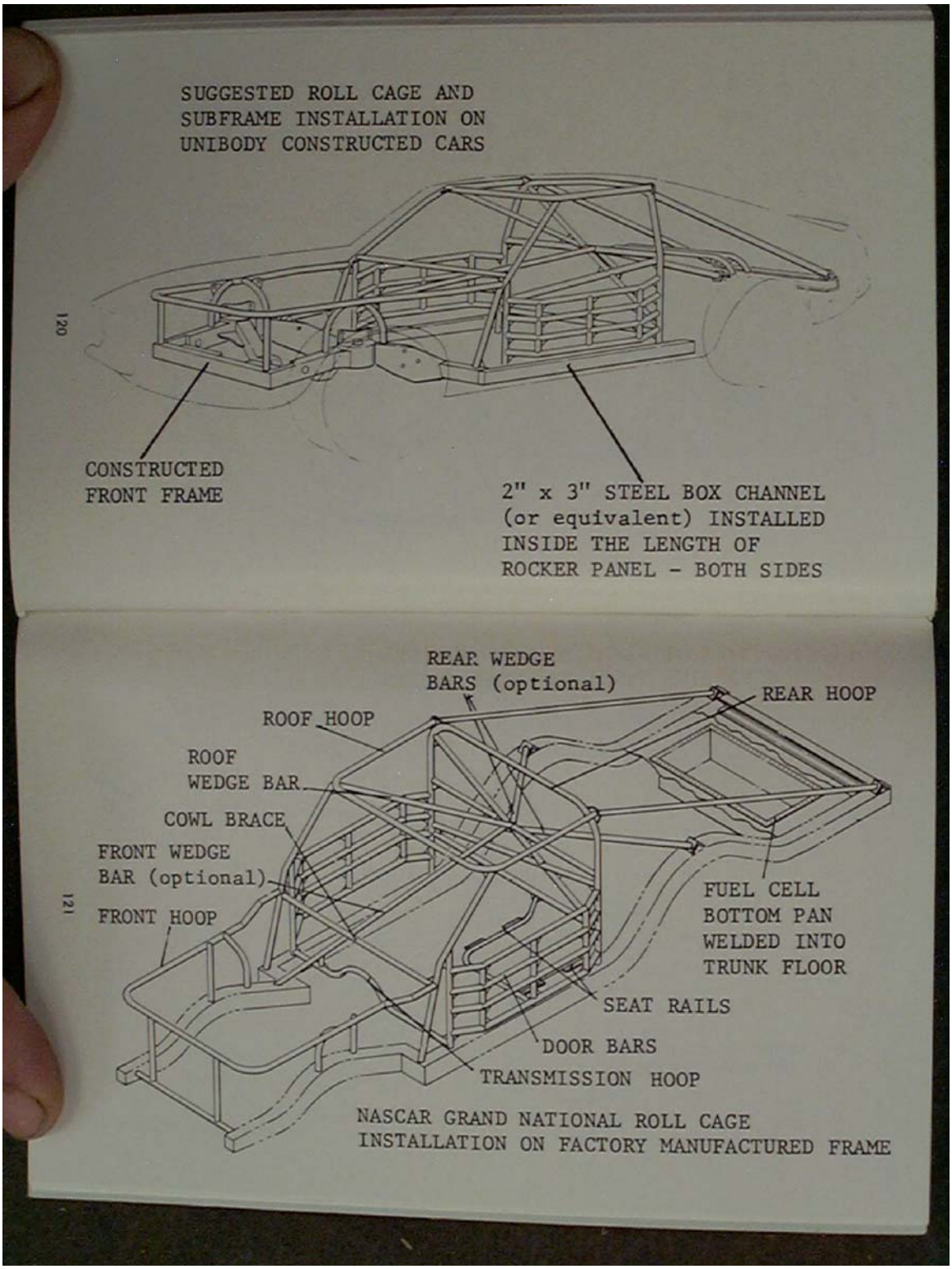


Figure 6: Integral Roll Cage and Chassis from the 1973 NASCAR Rule Book

Image courtesy: International Motorsports Hall Of Fame archives, Talladega, AL.

Though initially the NASCAR roll cage was little more than a system of bars intended to prevent roof collapse in the event of vehicle rollover, the roll cage evolved into a multifunction structure that comprised most of the stock car chassis. Through trial and error empiricism, it evolved to protect the driver in the event of an accident, and provide a more stable, more dependable platform for high performance.

As the roll cage became the standard chassis design across makes during the early 1970s, it eliminated possible discrepancies in performance between production cars.[299] In addition to encouraging close competition, uniformity between car chassis allowed racers to transfer tuning and driving skills between makes. By the late 1970s stock car mechanics and drivers were able to shift between a Chevrolet stock car and a Ford stock car without mastering a new body of knowledge about chassis tuning. This encouraged the transfer of talent, technical details, and procedure between race teams. The constant shift of talent between teams, an off-season phenomenon that came to be known as "silly season." This annual rearrangement of talent among race teams is a good example of how porous boundaries between specialized producers served the interests of stock car racers as a group. Philip Scranton describes this phenomenon as a "sociocultural asset renewed through routines of interaction."[300] Routines of interaction at the track, and in frequent changes among personnel at race shops kept technological development even throughout the racing community. Remixing skills and techniques contributed to close competition by preventing the accumulation of too much technical expertise on a single team. This annual mix-up of personnel between teams also promoted a sense of community among racers who were linked by common experience with near-identical technologies.

---

[299] Craft, p.104, NASCAR, *1975 Stock Car Racing Rule Book*, (Daytona Beach: NASCAR, 1975), p.128-132.
[300] Philip Scranton, *Endless Novelty: Specialty Production and American Industrialization, 1865-1925*, (Princeton, NJ: Princeton University Press, 1997), p.19.

Technological changes intended to promote fast, consistent action on the track had to be accessible to most racers. To be accessible, technologies had to be readily available, inexpensive, and easy to implement. With grass-roots enthusiasm for fast cars running high during the 1950s and 1960s, creating a willing cadre of racers was mainly a matter of keeping the economic barriers to competition modest. Keeping the equipment affordable was crucial to allowing part-time and small-time racers to fill out the field. Providing organization to grass roots racers was, after all, one of the reasons NASCAR was formed. In order to keep growing, NASCAR had to keep the stands full of fans, and ticket sales depended on keeping the track full of competition. Most of the technological innovation operated within these constraints. Typically parts found acceptable were borrowed from a single model and made legal for use on all cars. A good example of this scenario is the adoption of front wheel spindles from a 1956 Ford Galaxie as standard equipment for all racers. Though not specified in the rule book, these parts, as built and sold by Ford's stock car racing concern, Holman and Moody, were accepted on all makes of cars by 1960.

In assiduously pursing equal access to modification components for all competitors, NASCAR inevitably fostered uniformity in the design and construction of the race vehicle. The final manifestation of the NASCAR stock car was largely a conglomeration of affordable, robust and plentiful components borrowed from stock models in production during some part of the first thirty years of stock car racing.

Using suitable technologies borrowed from trucks, heavier sedans, or medium priced sedans with robust designs was a technique long familiar to "Modified" racers and "hot rodders." NASCAR mechanic interacted with the material world in a manner described by Claude Levi-Strauss who coined the term "bricoleurs" to describe creative enterprise that depended upon application of a diverse array of "Many sets of tools and

materials".[301] Borrowing a variety of components from the spectrum of mass-produced automobiles also made sense for budget-minded racers undertaking a technological development program. Junkyards, parts inventories, and even vehicles composed the palette of elements that racers borrowed, modified, and reconfigured in novel ways. Use of this "bricolage" of components meant that most deign experiments began with an inventory of parts of potential utility rather than a drawing board.[302] Indeed, the production-based format of NASCAR stock car racing demanded that race mechanics achieve innovation through modification and novel combinations of existing mechanical elements. As many NASCAR mechanics spent time working on regular "street" machines, they were familiar with the production components from which test samples were borrowed. Empirically derived knowledge of design, construction, manufacture and strength earned with hours of junkyard searches, skinned knuckles, and weekends at the race track helped offer guidance in the development process.

A good example of this process of innovation at work is the lower, rear suspension links developed by Junior Johnson to replace the original equipment of manufacture trailing arms of the 1963 Chevy. "When I started building the [1963 Chevrolet] cars," recalled Junior,

> I had a crew from North Wilkesboro that worked on my cars down in Daytona and we were building them at Ray Fox's shop. I started looking around for something else to go on the suspension on the back because I didn't like that kind of suspension, it was too radical movement. One of the boys that worked there had a Chevrolet pickup setting out there in the yard. I went out there and dropped down on the ground and looked up under it and saw those long trailing arms about six feet long, man, right there is what I need. So I jacked it up and take it

[301] Ibid, p.17.
[302] Claude Levi-Strauss, *The Savage Mind*, (Chicago: University of Chicago Press, 1966), p.16-36.

> out from under the truck and left it setting there, put them under the racecar, was about a month before we got him some more trailing arms for his pickup. When we got done with it – everything we did – NASCAR approved it because it was part of Chevrolet's stuff. We went to the racetrack and it was absolutely a dream to drive because of what it was underneath, the suspension and stuff.[303]

Despite the fact that the parts were in no way stock on the car that used them, NASCAR permitted the changes. The use of a Chevrolet truck component on a "stock car" was accepted partly because NASCAR officials desperately wanted to get Chevrolet back into racing, but also because the modification was simple and cheap. Junior continues,

> From that day on every car that runs today has them long trailing arms on there. I've tried to better them, the factories have tried to make a better system for them. Every time you get away from them you hurt [handling and speed of] the car. Everybody still runs the exact same thing as the '63 Chevrolet today. It's very rare that you luck up on something you can't do better.[304]

[303] Junior Johnson interview, "Speed and Spirit," February 2001.
[304] Ibid.

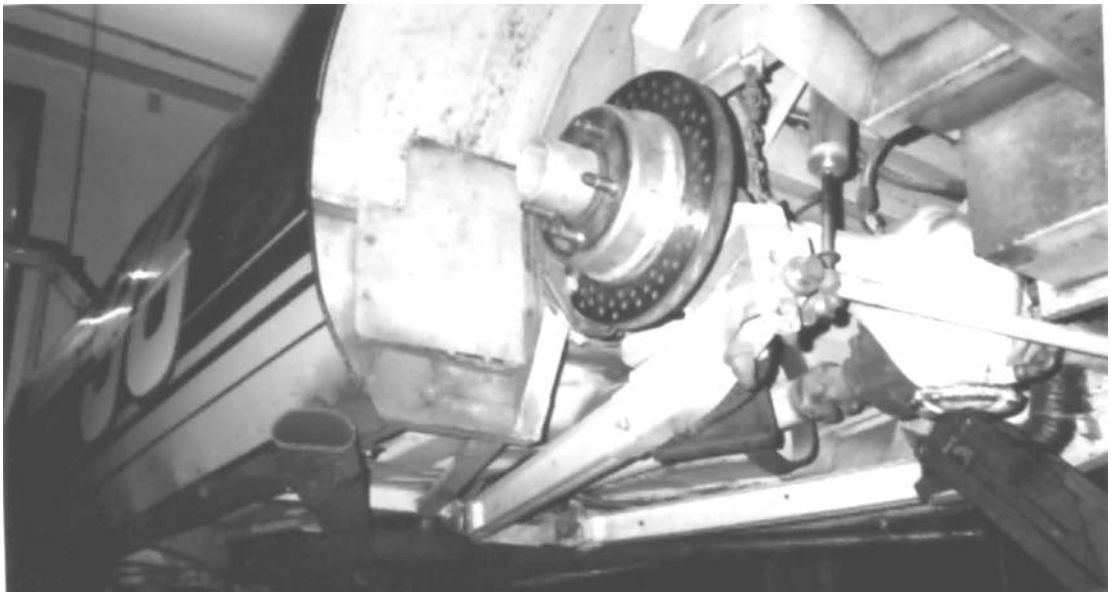


Figure 7: “Truck Arm” rear suspension on a NASCAR Winston Cup racecar as seen from below.

Image from author’s collection.

Junior’s contribution to the stock car chassis design is a good example of how innovation was allowed in NASCAR. Years of driving experience led Junior to dislike how the existing suspension control arm felt. Through experience with race chassis, Junior then suspected how the longer control arm from the pickup truck would react in the chassis. These appraisals were based on tacit understanding of vehicle “feel” found only through years of experience driving racecars on the threshold of adhesion, and searching junkyards for solutions to engineering problems. They were a combination of inspiration, intuition and empiricism.

As Junior points out, NASCAR approved the change because it used stock Chevrolet parts. Using stock components, even if borrowed from a pickup truck and utterly unlike those on the production Chevrolet sedan, was in keeping with the stock flavor of the racing series. Most importantly, stock components were economical. Racers interested in trying “truck arms” on their chassis, or racers in need of wreck replacement,

could find reasonably priced truck arms in Chevy dealers and junkyards across the nation. Dependence on stock components, even if borrowed from a different make, kept most NASCAR innovations easily within the budget of race teams.

There was another result of this modification that led to this technology being universally adopted by NASCAR stock car racers. The “truck arm” suspension permitted rapid chassis tuning. The long, trailing arms used coil springs to support the chassis. One end of the “arm” attached to the axle while the other was attached to a pivoting point farther forward on the frame. As the rear axle moved up and down, the arm hinged toward the frame compressing a coil spring. In this arrangement, the spring serves as a compressible fulcrum for a lever attached to the frame at the front end, and to the rear axle at the other. These coil springs, arranged as they were in the middle of a hinged lever, were very easy to change or adjust.[305] Soon, adjustable “spring perches,” threaded into the frame, permitted rapid adjustment of the relative pressure exerted on the rear axle by each spring. This adjustment, known as cross-weight or “wedge” is crucial to managing the weight of an oval track car. More tuning time for racers at the track helped facilitate faster and more evenly matched cars.

[305] John Craft, p.47,115.

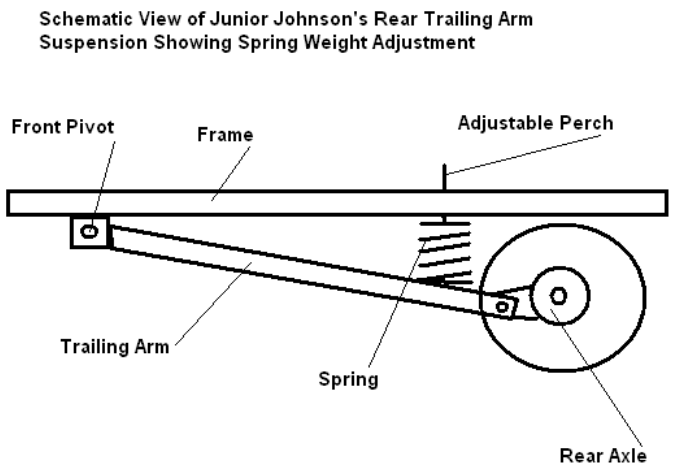


Figure 8: Schematic of "Truck Arm" suspension

Drawing by the author

The sort of modification undertaken by Junior can be called wholesale substitution. It involved swapping the entire chassis system from one production-based vehicle to another. Because Junior was a driver of consummate sensitivity, a gifted natural mechanic, and perhaps a bit lucky, this modification worked well. Though other radical shifts were approved by NASCAR, radical shifts such as this were the exception rather than the norm.[306]

Usually, NASCAR prohibited wholesale substitution because it threatened the notion of strictly stock. Rather, most innovation within NASCAR stock car racing occurred as the result of incremental, empirical shifts in the arrangement or modification

[306] For truck "full floating" hubs used to replace weak chassis components on the Hudson, Bobby Allison's use of "front steer" steering box of the '67 Camaro, and the adoption of the Ford "9 inch" rear axle are other examples of wholesale substitution.

of production-based components. This sort of innovation still required the NASCAR mechanic to act and think like a bricoleur, to borrow elements from a diverse palette of production components. However, it also demanded the sort of informed empiricism that is at the root of experimentation. Race mechanics made informed design choices, then created a number of slightly different mechanical configurations reflecting these design choices. On the track during testing or perhaps even in the midst of a race, these choices, as rendered in steel and rubber, were applied to the car and the results were noted. Working in an environment with plenty of mass-produced components made it easier to build and test rather than work from a theoretical perspective.

The efforts of master mechanic Smokey Yunick produced evidence of this sort of informed empiricism. When charged with improving the front suspension of a Chevrolet Chevelle, Smokey built varying configurations of lower control arms to test on the car. Photos of artifacts from Smokey's "Best Damn Garage In Town" show this method in process.

Figure 9: Three Iterations of a Chevrolet 'Chevelle' Front Lower "A Arm"

Image from author's collection.

Of the three control arms pictured, one is truly stock and the others have been gusseted to take the loading of a stiffly sprung stock car.[307] A close-up photo of the stock A-arm shows that it is a triangular heavy-gauge stamping with two pivoting hinges where the inboard "points" mount to the frame, and a universally pivoting "ball joint" on the outer end. To hold the weight of the car, a coil spring presses with one end into the

[307] The ''A-Arms'' or ''control arms'' were typically used on the front suspensions of American sedans. Two steel frames, roughly ''A'' shaped were arranged above one another parallel to the ground . The lower A-Arm was hinged at the bottom of each ''leg'' to the frame. At the point of the A, a pivoting ''King Pin'' connected the upper and lower A-Arms. At the center of the King Pin, a Spindle held the front wheel on the car. A coil spring, interposed between the bridge of the ''A'' and an upper spring perch fixed to the frame kept the lower A-Arm hinged parallel to the ground.

“spring pan” in the center of this triangular component and against a spring perch on the vehicle frame at the other end.

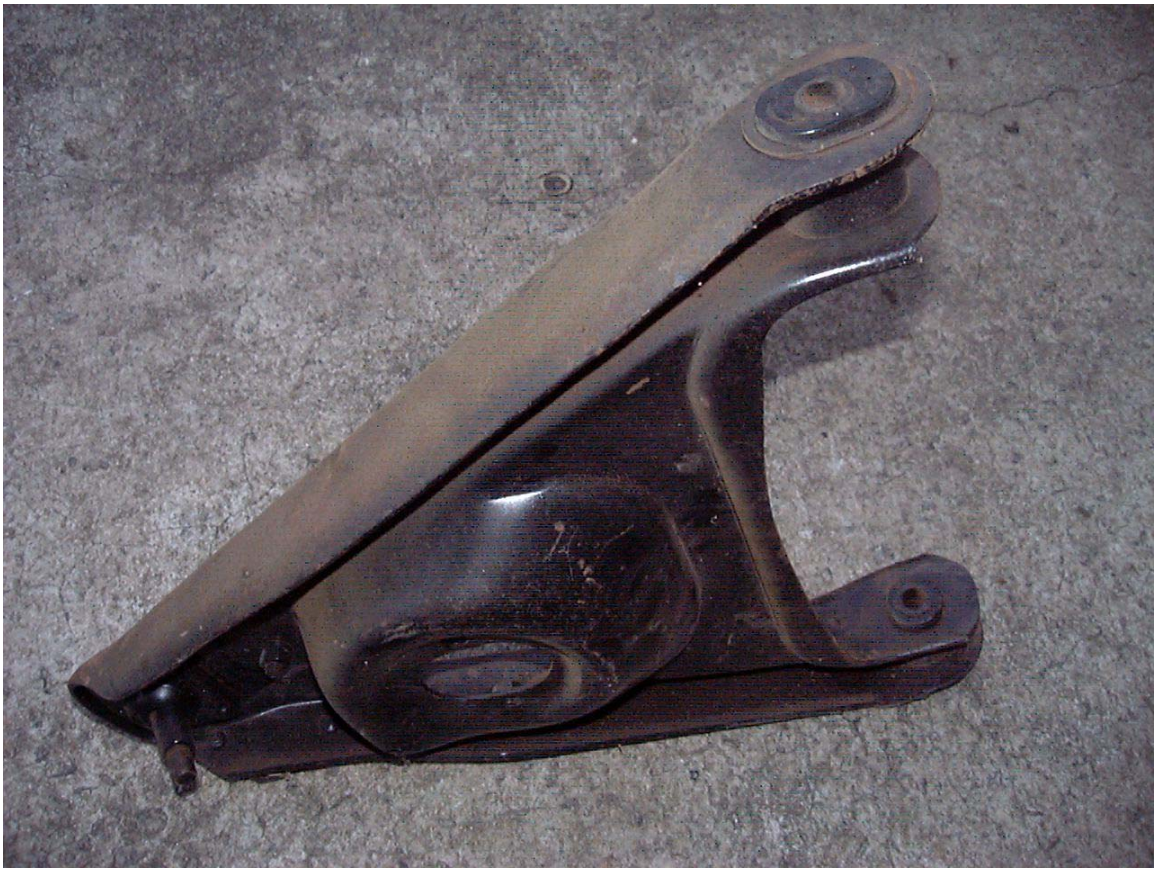


Figure 10: Unmodified Stamped Steel “A Arm”

Image from author’s collection.

Both of the two modified A-arms have been altered to improve their strength and suitability to NASCAR stock car racing. The two modified arms were both boxed using a steel plate welded to create a stronger A-arm of hollow section. The “spring pans” on these reinforced A-arms were also raised to accommodate shorter, stiffer springs. In addition, the spring perch area of the A-arm has been reinforced with a steel bar, and two shock mounting eyes were welded and received two shock absorber mounting eyes.

The alterations to one of the modified arms amount to reinforcement of the existing stock unit without considerable alteration of chassis geometry.

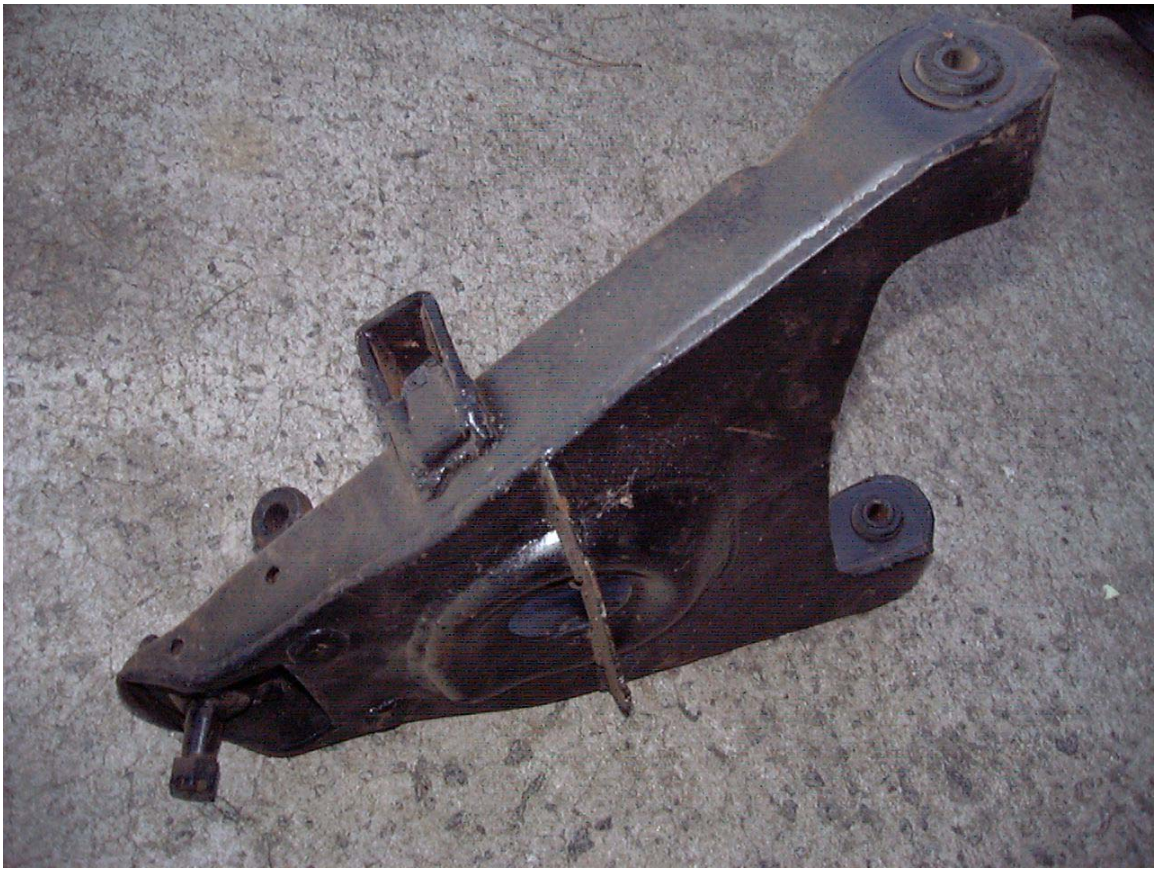


Figure 11: Reinforced “A Arm” with added shock absorber mounts
Image from author’s collection

One of the modified A-arms has been radically altered to affect the ride height (and likely through that the aerodynamics) of the racecar. The version pictured at far right in the group photo, was modified to effectively lower the front of the car. It too was boxed, reinforced and altered to accept two shock absorbers and a shorter spring. However, the geometry of its outer mounting point or “ball joint” was also altered. The car was lowered by removing, gusseting and re-welding the outer end so that the

suspension spring that holds the car up rested lower relative to the attachment point on the wheel. The consequences of this change would have altered the geometry to such an extent that testing in use was required.

Figure 12: Reinforced and “Dropped” ‘Chevelle’ “A Arm”

Image from author’s collection

Testing components either during practice before a race, or on a track during an off week, allowed drivers and mechanics to experiment with and learn from new, subtle alterations. Reports from the driver regarding handling characteristics, and any changes in lap times helped Smokey and other mechanics in similar circumstances make decisions about how to build or improve a car. This process, a series of informed

empirical constructs and tests, is the method through which much of NASCAR technology evolved. It is useful to note that it bears no relation to any process that might serve to test the merits or deficiencies of a true production car.

The production-based format helped keep NASCAR racing affordable, and helped keep factory money pouring into the sport. Yet even with the allegiance to a production-based formula for car construction, items straight from the assembly line at times proved too innovative for NASCAR. The notion of accessibility also limited the technological direction of innovation in NASCAR stock car racing. This feature of the competitive environment set NASCAR racers apart in stark contrast from Hot Rodders. Within the speed culture of Hot Rodding and Drag racing, technical creativity was held at a premium. Within NASCAR circles it was constrained by the logic of promoting, and therefore closely resembling, production-based cars. The original set of NASCAR "strictly stock" rules was formed by racers and promoters directly involved in the process of making a living in racing. As a result the means of innovation, like the parameters of the technology, were suited to the expertise of the racing community. Bill France and NASCAR were careful to keep, insofar as possible, larger institutions from gaining too much power developing the stock car. The development of the induction systems on NASCAR stock cars provides a telling example of how innovation was curbed to suit the budgets and abilities of the stock car racing community.

In the beginning of the Grand National series, NASCAR permitted whatever induction system manufacturers used as stock. In 1947, American auto makers universally relied on carburetor induction.[308] Typically, on six cylinder engines, this was a

[308] A carburetor is a device that mixes fuel and air. Air is drawn into the engine through a venturi creating a slight vacuum that draws fuel from a small reservoir into the air stream through an orifice commonly known as a "jet." Carburetors also usually have a small piston pump called the "accelerator pump" that mechanically pumps a metered amount of fuel directly into the incoming air stream through a separate orifice. When building high performance engines it is usually better to have

single one-venturi down draft carburetor, while V8 engines had two-venturi down draft carburetors. With the introduction and acceptance by NASCAR of the Twin H Power option for the six cylinder Hudson Hornet, a dual carburetor setup that boosted horsepower to competitive heights, the induction race was on. Throughout the 1950s, factories moved to add horsepower by adding more induction capacity by first building four venturi and eventually forced induction system. A new generation of overhead valve V8s introduced between 1949 and 1953 were soon offered with four venturi carburetors, soon known as "four-barrel" carburetors, as optional equipment. The publicity possible with horsepower claims and racing performance meant that manufacturers soon offered high output engines and options throughout their model ranges. One 1956 *Automobile Industries* article commented that,

> The fierce struggle for the coveted first four places in passenger car registrations appears to have generated many potential new entries in stock car competition. Many motor car producers saw prestige value in competitive events and are readying themselves for the variety of stock racing events in the coming year. Best evidence of this is the emergence of super-powered stock or optional engines not only in sports models but in cars down to the lowest priced classes.[309]

Mechanical fuel injection systems perfected for use with airplane engines during the Second World War were known to offer better performance than carburetion systems.[310] Refined by manufacturers of speed parts for Hot Rods, fuel injection soon

---

more or larger carburetors that will "flow" and mix greater quantities of air/fuel mixture.

[309] Joseph Geschelin, "Super-powered Engines for Stock Model Cars," *Automotive Industries*, November 15, 1956, p.64.

[310] "Flash: Fuel Injection is Here," *Motor Trend*, February 1956, p.49,

found limited high performance applications.[311] During the early 1950s, American automotive literature began touting the marvels of fuel injection, printing articles on the popularity of simple fuel injection systems used by hot rodders, noting the use of fuel injection on purpose built European racing cars, and predicting the application of this marvelous technology to American production cars.[312]

Though widely discussed in the technical and business literature of the 1950s, fuel injection had not received the same popular application in the US that it enjoyed in Europe. But this situation did not last for long. The potential horsepower gains possible with efficient mechanical fuel injection, as well as the technical romance of a system whose performance was proven during the Second World War, no doubt motivated the adoption of fuel injection. Numerous accounts in popular and trade magazines, as well as applications on the racetrack, indicated that his new fuel mixture technology was to be the next step in the evolution of automotive induction systems for American production cars.[313] Indeed, it was fuel injection, offered as an option on the Chevrolet

---

[311] Fuel injection, unlike carburetion, relies on mechanical means to transfer fuel into the stream of air flowing into an engine. Pressure is maintained on a system of injectors that, when actuated, spray atomized gasoline into the inlet tract. The difficulty in using fuel injection is accurately timing the spray of fuel so that it coincides with the flow of air into a cylinder. The advantages offered by fuel injection include diminished flow restrictions (such as venturi) in the inlet tract, and more linear throttle response because of direct rather than vacuum actuation of main jet fuel flow.

[312] "Unique Fuel Injection System Does Not Use Timing Device," *Automotive Industries*, May 1, 1949, p.45. H. Scherenberg, "Why An Unblown Engine With Fuel Injection Was Selected For Mercedes Benz Racing Cars," *Automotive Industries*, April 15, 1957, p.62-63,106. The article on unique timing described the constant flow, orifice controlled system developed by Stu Hiborn and popularized by Hot Rodders nationwide and the Mercedes-Benz article described the superior efficiency possible with fuel injection.

[313] "Bendix Introduces Electronic Fuel Injection," *Automotive Industries*, October 1, 1956, p.49, "The Shuttle Piston Fuel Injection System," *Automotive Industries*, October 1, 1956, p.52, "The Marvel-Schebler Fuel Injection System," Automotive Industries, January 15, 1957, p.58, "Details of the Lucas Fuel Injection System, *Automotive Industries*, February 1, 1957, p.52-53, A. H. Winkler and R.W. Sutton, "The Bendix Electrojector Provides Timed Intake Port Fuel Injection," *Automotive*

Corvette and available for the Chevrolet Bel Air in 1956 that helped keep the smaller displacement Chevrolet engine competitive.

Not to be outdone, the following year Ford offered a McCulloch supercharger as a high performance option on the Thunderbird model.[314] This induction system used a belt-driven centrifugal supercharger to force more fuel/air mixture into the engine than the engine could normally suck in on its own. As with fuel injection, tuning a car with a supercharger for maximum performance required knowledge and skills beyond those of most NASCAR Grand National mechanics. Additionaly, superchargers and fuel injection added another level of cost to the car building process.

In June of 1957, the NASCAR Grand National rules outlawed all forms of induction except the four barrel carburetor.[315] Contemporary automotive correspondents read this move as an attempt to curb the very public and very controversial horsepower race between factories.[316] Limiting the form of induction also helped diminish any technological advantage enjoyed by factory teams by settling on a very common standard form of induction. Four barrel carburetors had become commonplace on higher performance American sedans since the early 1950s and were therefore inexpensive to obtain. The ubiquity of the four-barrel also meant that most mechanics already knew how to tune them.

In 1957 induction technology began moving beyond the means and expertise of NASCAR racers as Chevrolet adopted a Rochester mechanical fuel injection as a high performance option. This is not to say that NASCAR mechanics of the day could not master the fuel injection systems. Indeed, NASCAR mechanic Smokey Yunick was

---

Industries, February 15, 1957, p.50-53. William Carroll, "Fuel Injection," *Motor Trend,* August 1957, p.30-31.

[314] Al Outcalt, "Why Detroit Censors Speed," *Speed Age*, October 1957, p.62.

[315] *Nascar Newsletter*, March 22, 1957, p.4, NASCAR, *1957 Stock Car Racing Rule Book*, (Daytona Beach: NASCAR) 1957, p.31.

[316] Al Outcalt, "Why Detroit Censors Speed," *Speed Age*, October 1957, p.62.

employed by Chevrolet to help groom their Rochester fuel injection system for racing applications.[317] When working for Ford the following year, the new McCulloch superchargers were also tuned by Yunick to meet the needs of track competition.[318] It seems likely that NASCAR suspected that the factories and perhaps a few select racers would have a monopoly on the latest and best induction technology. With huge testing and development facilities, staffed by legions of engineers, manufacturers had an advantage in developing these new technologies for the track. The simplicity of carburetor induction, and the established expertise of NASCAR racers, would help prevent domination of racing technology by factories.

In addition to keeping technology well within the mastery and control of the stock car racing community, the prohibition of exotic induction technology influenced where factories spent their research dollars. [319] In a perversion of the advertised relationship between racing and production automakers, engineers for the "big three" seem to be taking cues from the rule book rather than performance data from the track.

With the carburetor legislation, NASCAR broke decisively from the established model of regulating production technology to create competitive racing. By specifying how many venturi were legal, rules contrary to technological development by automakers were established. While no doubt saving American automakers countless thousands on development of these more sophisticated technologies, prohibiting alternatives to carburetors also marked the departure of the NASCAR formula stock

---

[317] Yunick, p.68-69.
[318] Yunick, p.64-65.
[319] NASCAR's decision to prohibit fuel injection may have delayed acceptance of this induction systems for production cars. The decision to remove fuel injection from the performance arena probably encouraged automakers to squander their early lead in the development of this technology. While automakers of other nations developed perfectly workable mechanical and electronic fuel injection systems during the 1960s, American cars did not enjoy the benefits of fuel injection until the mid-1980s. Volume producers such as British Leyland, Volvo, Peugeot, Renault, Fiat, and Volkswagen all had production fuel injection systems by the middle-1970s.

racecar specifications from prevalent contemporary production technology. From this point onward NASCAR began to assume more control over what legitimate production components were legal for competition.

Perhaps the most important tenet governing the development of the NASCAR stock car was the intent to guarantee close competition. As the phrase came to be known in the NASCAR rule book, all equipment had to be built "in the spirit of competition. This phrase, when added to the rule book in 1953 allowed NASCAR officials broad latitude in determining what innovations and what vehicles were allowed on the track.[320] By building discretionary power to accept or deny technologies, even as late as the morning of a race, NASCAR could carefully ensure that the cars on the track were evenly matched and therefore likely to render a close, competitive race.

Like safety, the "spirit of competition" is a morally attractive notion. It was natural and normal, NASCAR argued, to want to see a good race. As a sanctioning body, NASCAR was responsible for ensuring fair competition. Yet fair competition, when a large part of performance depends on a car, is antithetical to technological innovation. Like the liberal interpretations of vehicle modifications made in the interest of safety, administering rules to preserve the spirit of competition was directly opposed to the idea that racing might improve the breed. Unlike other forms of production based racing, modified, strictly stock racing retained close exterior association with production cars found on showroom floors. This association, and general acceptance of racing as a pastime, was strengthened by the historical assertion that race tracks were the best place to test and develop automotive technology.

There is evidence to suggest that this notion had a long life before the creation of NASCAR. When managing the Indianapolis Motor Speedway during the 1920s, World

[320] Don O'Reilly, "When Is A Stocker Not A Stocker," *Motor Trend*, May 1957, p.56-58, Al Kidd, *Trends In Auto Racing*, Motor Trend, July 1956, p.27-28, NASCAR Rule Books, 1948 through 1979.

War One ace Eddie Rickenbacker promoted the idea that racing was a great way to test cars. The 1947 AAA rule book states,

> Since it is the purpose of speed trials and record attempts to demonstrate to the public what may be expected in the way of performance of the motor vehicles which are sold by dealers, any changes – mechanical or structural – which affect the performance of the motor vehicle would defeat this purpose and are not permitted.[321]

For obvious promotional reasons, the association between racing and product development was made all the more frequently when production-based cars were the implements of competition.

During the 1950's this testing aspect served the interests of racing organizations like the AAA and NASCAR by linking the activities on the track with then popular concepts of legitimate scientific method and test procedure. For manufacturers of automobiles or related supplies, this association implied that the vehicles available in the showroom could withstand and perform under the rigors of competition. In an interview published in the August 1954 edition of *Speed Age*, Bill France suggested that valuable information about vehicle safety, engine efficiency and mechanical design was gleaned from hours of free testing ancillary to the use of the automobile in sporting competition.[322] Not surprisingly, accounts of the virtues of racing for automotive development seldom alluded to the vast differences between daily operation of a car for primarily utilitarian purposes and the labor intensive preparation and use of a car for racing. Such accounts also do not describe the mechanism of feedback from the racetrack to automakers. Though there was a time when, it can be argued, contests of speed and endurance did provide valuable engineering information to automakers,

---

[321] American Automobile Association Contest Board, *Official Competition Rules*, (Washington, DC: American Automobile Association, 1947), p.68.
[322] John Painter, "NASCAR Prexy Talks," *Speed Age*, August 1954, p.55.

useful feedback from racing competition was best suited to custom production at the dawn of the motoring age. During this phase of automotive development, mechanical reliability was such that winning a contest was as much about finishing as moving fast. With mass production and road building, motoring became more often an act of necessity rather than sport. Most cars were built to parameters other than top performance or endurance, and the utility of racetrack testing at the limits of mechanical capacity waned. As the distinction between custom-built racecars and road cars increased throughout the 1920s, 30s and 40s, the applicability of engineering lessons learned on the track decreased.

That is not to say that most automakers plowed under their test tracks. On the contrary, all of the big three built new testing facilities during the 1940s and 1950s in order to test production vehicles.[323] Increased use of test tracks suggests that using racing as a laboratory was not enough. While lessons learned on the track could be incorporated in future models, in-house testing likely provided more useful information from testing within normal operating parameters. Because of tooling costs, and the importance of production engineering, mass production was not amenable to design updates made available through the constant sort of test-to-failure, repair and retest agenda necessary in motor sport.

Other dissimilarities between racing and normal use limited the value of information gathered in competition. Racing cars of all types were, typically, allowed to be stripped of unnecessary mechanical options and thoroughly lightened, therefore any information gathered about chassis or engine performance was of dubious value. Similarly, because races were typically conducted using high octane race gas, information regarding thermal efficiency, ignition timing or combustion efficiency was of limited value.

---

[323] *NASCAR Newsletter*, June 21, 1957, p.3

Organizational impediments also militated against racing improving the breed. The creation of dedicated racing departments within manufacturers insulated the bulk of engineers and designers from improvements pioneered on the track. Either race programs were run entirely in house, where mechanics, drivers and engineers all worked together on the company payroll, or factories provided material, financial and technical support to racers working out of their own shops. The latter form typically prevailed in American racing after the 1920s. Typically, engineers were assigned to support racers, not the other way around so little information traveled back to the drafting rooms of production cars.

A review of Ford's internal literature from the 1960's indicates that the relationship between the performance division and other divisions was not conducive to gathering information about production cars on the track. Numerous, often agitated, correspondence between Ford Racing Director Leo Bebe and the head of Ford Motor Sports and the head of Ford's Engine and Foundry division about the production schedule of Ford's overhead cam 427 racing engine illustrate this point. The fundamental distinctions between racing on oval tracks and manufacturing regular production cars kept the design of the two utterly separated within automakers. The fundamental dissimilarity between the demands of the track, and the demands of the average automotive users driving routines as expressed in the specifications of cars built to suit either environment effectively prevented feedback of technical knowledge from the racetrack.

Despite the thin the connection between building a better racecar, and building a better car for the consumer, the famous line, "win on Sunday, sell on Monday"[324] has been a consistent reminder of the promotional origins of stock car racing. Since the

[324] "Ford Scores Sales Success in South and West as Racing Image Grows," *Wards Automotive Reports*, Slide No. 62F, Ford Motor Company Archives, Motorsports Collection, Dearborn Michigan.

earliest trials of truly “stock” cars held during the 1900s and 1910s, participants and promoters involved in the use of production machines for racing have touted the correlation between track performance and sales. Hudson advertising copy provides an example of the association often made between the demands of racing and everyday driving, Quoting Daytona Beach Classis winner Marshall Teague, “I know, from plenty of experience behind the wheel in America’s toughest stock car races, that the Hudson Hornet offers more performance, more stamina, and more safety than any other car. . . And these great advantages are just as important to you in regular driving as they are to me in winning races.” [325] Though advertisers seldom bothered to describe how mechanical attributes useful for racing on an oval track for 200 miles were equally well suited to use in the daily commute of the American consumer, the linkage between performance on the racetrack and desirability as a “street” car persisted.

The “spirit of competition,” therefore, can be seen as the element of NASCAR procedure and culture that maintained the associations crucial to justifying the sport. Flexible standards kept the competition close to keep fans returning to the tracks for exciting action. The closely maintained exterior of the cars maintained the illusion that the cars were stock while the changing conventions of chassis and drivetrain kept competition close. This symbolic association of the exterior helped NASCAR justify racing as an enterprise useful for the development of the car and helped factories use racing as a promotional tool. Close competition kept fans engaged and racers, who wanted to stay competitive, loyal. Calculated regulation of the technology of competition in the name of maintaining the “spirit of competition” allowed NASCAR the latitude to build a symbolic universe inside the speedway. To no small extent this symbolism was cultivated and maintained by the racers. Their complicity can be summarized as some

[325] “The Fabulous Hudson Hornet,” *Motorsport*, May, 1952, p.36.

combination of a willingness to submit to authority in order to compete with one another, a desire to tinker with racecars, or simply a need to make a living.

The oligopolistic nature of the American automotive industry reflected a similar "competitive détente." In the case of automakers, a spirit of competition had long been maintained by the threat of anti-trust legislation, as well as communal sense of cooperation.[326] Perhaps because of this precedent, automakers seemed willing to accept managed competition and paced technological change as long as everyone was in on some profits. As with the case of Chrysler supplying bodies to Packard, even when their internal demands required outsourcing, general (if occasionally grudging) acceptance of NASCAR rulemaking to protect close competition was a guarantee of common interest and mutual survival. [327] Ford, for example, never bothered to advertise that its wheel spindles and hubs were used on all NASCAR stock cars. Competition was more important than winning, especially in the maintenance of competition as an ideal dear to the consumer.

As with most communities, there were mavericks. Not everyone was willing to settle for the status quo. For the automotive industry, Preston Tucker was perhaps such a figure.[328] The failed launch of the technically revolutionary automobile bearing his name defied existing conventions and normative business relationships within the American automotive industry. Such individuals probe the boundaries of tacit agreements in an effort to satisfy personal ambition and intellectual curiosity. Few racecar builders wrangled longer, or more fiercely with NASCAR's "spirit of competition" than Smokey Yunick. Through unconventional interpretation of the rules, Smokey constantly probed the frontier of innovation. In 1968, Yunick built a racecar covered with

---

[326] Lawrence J. White, *The Automobile Industry Since 1945*, (Cambridge: Harvard University Press, 1971), p.173, 223-224
[327] Ibid, p.75
[328] Ibid, p.66

1966 Chevrolet Chevelle bodywork that was legal according to a strict interpretation of the rules. For example, the rules stated that the engine had to be mounted on the centerline of the frame.[329] Because distributing weight toward the left side of the car offered better traction, Yunick moved the entire frame under the body of the car to achieve better weight distribution. Because the rules only specified that the engine had to be centered in the frame, not that the frame had to be centered under the car, the configuration was in some ways of thinking, legal.

Not content with minor technological advantage, Yunick worked every trick he could find into the Chevelle for 1968. As he explains,

> For the car in '68 I decided it was best to do everything in Daytona. I use a lot of good stuff Musser and Winchel taught me 'bout chassis and this time I used all I knew 'bout aerodynamics.[330] I pulled the grill out, cut the air entrance in half and drained the air from the front and back of the wheel wells by creating negative air pressure pockets just behind all of 'em. I split the front bumper lengthwise and add[ed] two inches. This kept air out from under the car and, together with the wheel well modifications, really helped eliminate front lift from packing air into the engine compartment. On the trunk lid we were allowed li'l chickenshit spoilers, but they were nowheres near enough. So I still had a small rear roof spoiler, and slid the body back a couple of inches and moved the wheel wells to fit the new contours front and rear. You might say this was just sloppy measurement on my part. With all of these little changes, I had a pretty good control on the balance of down force front to rear.[331]

---

[329] NASCAR, *1968 Stock Car Competition Rule Book*, (Daytona Beach: NASCAR), p.68.
[330] Paul Van Valkenburg, *Chevrolet Racing: Fifteen Years of Raucous Silence 1957-1978*, (Warrendale, PA: SAE) 2000, p.174, Yunick, p.323, Musser and Winchel were engineers working for Chevrolet Racing during the 1960s.
[331] Yunick, p. 327.

For NASCAR, this departure from status quo was a threat to competition. In a legendary exercise of discretion, NASCAR virtually disqualified the car by suggesting, with only a few hours remaining before qualification, that the frame be replaced. Despite not actually having a rule that forbid moving the weight of a car around or moving the frame under the car body, and providing a descriptive drawings of a highly modified frame in their rule book, NASCAR ruled that the car had to have its frame replaced with a stock unit. To quote Smokey about this Chevelle, "… a cheater, damn right it was, but not according to the NASCAR rule book."[332] Smokey knew that his car violated the spirit, though not the letter of the rules. The important caveat printed in the rule book granting NASCAR officials discretion to disqualify cars or procedure "not in the spirit of competition" ensured disqualification of Yunick's entry. Perhaps because of his contentious nature, because he enjoyed developing technological advantages, and likely because he realized getting kicked out would create as much publicity as racing, Smokey built a car utterly out of keeping with conventional practice.

The advantages offered by Yunick's package of innovations were too much. NASCAR wanted control over the pace and direction of innovation, not just the technical parameters. NASCAR permitted the gradual uniform adoption of single innovations like Junior's "truck arm" rear suspension, because it was inexpensive, helped with chassis tuning and ultimately improved competition. NASCAR also facilitated the adoption of truck hubs to prevent rollovers, this kept cars on the track and minimized responsibility for wrecks. However, in the case of Smokey's Chevelle, NASCAR could not afford to have so many conventions rewritten in one swoop. Like fuel injection and supercharging, Yunick's innovations were too much, too fast. The technological advantages employed in his radical "stock car" could not be matched by the other competitors, at least not in time

[332] Yunick, p.330.

for the race that afternoon. Smokey claimed the gray area of rules interpretation for himself, and suffered the consequences.

Though Smokey's Chevelle never raced a lap, it well illustrates the control NASCAR extended over the pace and direction of technological innovation. As controlled by NASCAR, the development of the stock car amounted to gradual, controlled elimination of gray areas in the rules that allowed for creative application of empirical method. New approaches challenged the gray area of interpretation surrounding NASCAR's rather general rules conventions were established within the community of racers. As the NASCAR stock car series developed, racers were continuously applying their tacit knowledge about the conditions and performance of stock and stock based components on the track to the problem of building an inexpensive, competitive racecar from production components.

Knowledge about how best to race could only be acquired through experience. Because the systems comprising any car are numerous and complex, and the systems comprising a NASCAR stock car were a conglomeration of purposeful adaptations of production components from different manufacturers, the NASCAR chassis was a device only NASCAR racers were familiar with. As engineer Mark Donohue describes of his transition from Porsche factory team racing program to NASCAR stock car competition,

> When the car was first put together, we all went down to Charlotte to look it over and run it on the superspeedway. I spent three days driving it around the track, while Hutch, Port, and J.C. [experienced stock car racers] tried to teach me all the tricks of the trade. First we ran the springs they recommended. Then they showed me how cross-jacking with different springs affects the handling, and I tried out every other spring they had – before finally coming back to their setup as the best. They showed me a little about ride heights, and how rake affects the

> aerodynamics, and what sort of line was best on those tracks. And all the time I was thinking, 'Boy if we had prepared the car ourselves….' I reckoned the roll cage was wrong, and it had all rubber bushings in the suspension, and it had drum brakes that were just totally inadequate to my standards. The plan had been to start with their ideas first and go on from there. It seemed to be such a basket case that I knew we could improve it at our shops before the first race.[333]

With an engineering degree and experience with more sophisticated machinery in road racing, Donohue remained certain that he could outperform the experienced stock car racers. The actual race proved that the local knowledge held by working NASCAR mechanics was crucial for success in stock car racing. "Nevertheless, the car was fast," Donohue continued,

> and everyone was very happy and enthusiastic…. The first race was at Riverside, only a few weeks away, so J. C. and Port brought the car to our shops and did their maintenance there, while we did our thing. We changed the suspension a little, and reinforced the frame here and there, and fitted disc brakes…. We had hoped to be quickest on a road course, but we soon learned that you can't walk in and immediately be the best in such a highly specialized area as stock car racing. As Junior Johnson told Roger [Penske], we aren't Supermen. Everybody has to serve an apprenticeship in a new racing game…. The car started getting sick in the first laps, and it got progressively worse until I had to stop. The locating linkage for the rear axle pulled right out of the frame.[334]

---

[333] Mark Donohue, *The Unfair Advantage*, (New York: Dodd, Mead & Company, 1975), p.227-228.
[334] Ibid., 228-229

In this instance road racing champion Donohue and his very experienced car owner Roger Penske, tried to apply what they knew from racing purpose built cars to the demands of stock car racing. He remained convinced of his own experience and training, unwilling to accept the empirically constructed knowledge of the NASCAR racing fraternity. I refused to pay attention to all the old rules they had," he admitted,

> like 'you never put a sawed-off forty-five-inch trammel bar on at Darlington.' They knew everything from years of experience on al those track. I felt the car should handle a certain way, and I would work for that. But because of the weight and the oversize front tires, it just wouldn't handle like a road-racing car. The behavior was quite sluggish, and it wouldn't respond to treatment. Besides that, those cars run all the time at wide-open throttle, and usually peak cornering forces with a lot of suspension deflection. You end up with entirely different circumstances from road racing…. I was really out of my element, and because of my stubbornness – my refusal to play their rules – it took a long time to learn how to do it.[335]

Without developing the tacit knowledge necessary to tune a NASCAR legal stock car chassis, Donohue, Penske and their crew were clearly lost. His experience could not have prepared him for the complex behavior of a production-derived chassis heavily loaded by 4000 pound vehicle weight, momentum, and the banking of an asphalt oval. Despite being Sports Car Club of America Pro (SCCA) road racing champion, 1972

[335] Donohue p.230, Chassis deflection, while present in all cars, is minimized in purpose built racecars. With more flexible production-based components, bending components and assemblies present more of a problem for chassis tuning. Deflection of a single control arm effectively offers the challenge of tuning two springs and changing chassis geometry at the same time, complex behavior influenced by three variables that affects only one wheel. Deflection of the frame, both upper and lower control arms, and the wheel would have been possible during Donohue's tenure as a NASCAR racer. With continued reinforcement of the NASCAR roll cage, and replacement of stock suspension components with more rigid fabricated assemblies, this deflection has been reduced, but not eliminated.

winner of the Indy 500, an experienced racecar designer, and a test driver and engineering consultant for the Porsche factory racing efforts, Donohue was unable to master tuning a NASCAR chassis.

Rather than allow testing, engineering and research to guide innovation, the NASCAR strictly stock rules promoted the sort of gradual "cut and try"[336] innovation that suited the talents of competitors. Such heavily empirical method of stock car innovation depended on intuitive understanding of the physics of racing, experience with machines, extensive knowledge of automobile parts suitable for experimental use and, most importantly, time on the racetrack. The technology created in this manner also required a degree of empiricism to understand and operate effectively. After driving or observing a car in action, drivers and race mechanics were particularly well suited to developing technical changes that might increase performance. Using components borrowed from other makes and models was the same sort of parts swapping common among hot rodders, modified racers and other grass-roots speed enthusiasts of the era.

Mark Donohue wrote,

> For the last race of the season I went to Rockingham just to watch them race, and I learned more that way than in all the races I had driven. I could take time to talk to people about how it was done, and I could see what everyone was doing on the track…. I learned how a driver would determine what was wrong with his car's balance, and have the mechanics correct it during a pitstop. I might have been able to figure out how to drive better if only I had been humble enough to watch them from the outset.[337]

---

[336] In interviews, the exact term "cut and try" was used by notable stock car mechanics Smokey Yunick, Ray Fox and Junior Johnson to describe the early stock car method of technological development. See Smokey Yunick, *Best Damn Garage in Town*, Carbon Press, 2001, p.37 and Junior Johnson Interview 7/21/01, Speed and Spirit Interviews, Atlanta History Center Archives.

[337] Donohue, p. 232.

Though no slouch at transferring skills from one sort of racing to another, it took Donohue six races over two seasons to realize that the NASCAR stock car was a device born of expedience and politics, not engineering logic. Though by his 1972 debut, NASCAR stock cars were virtually purpose-built racecars, their performance was somewhat less than other purpose built cars from contemporary racing series. Indeed, the NASCAR formula was built to negate much of the possible contribution of engineers like Donohue. Rather than a technical exercise in how to cover distance most quickly and efficiently, it was a device suited primarily to facilitating inexpensive, close, competitive race entertainment among brethren drivers and mechanics.

The net effect of NASCAR's regulation of innovation produced a racecar thoroughly adapted to the process of racing. By 1979, the specifications for chassis, front suspension geometry, rear axle, engine size, engine layout, safety cage, and wheelbase of the NASCAR stock car formula were codified. No longer was the series a race between cars that could legitimately claim to be of production origin. Convention and regulation dictated that a legal NASCAR stock car was composed of elements borrowed from American production automobiles from the previous thirty years. The conglomeration included Chevrolet Camaro steering components, Ford Galaxie front spindles, Ford Truck front wheel hubs, a tubular space frame chassis grafted atop a Ford Galaxie frame, Chevrolet Pickup Truck rear suspension arms, and a Ford 3/4 ton Pickup Truck rear axle. The engine specified was a to have V8 pushrod layout and displace 358 cubic inches, and transmissions were four speed designs based on either the Borg Warner "T-10" or the Ford "top loader."[338]

[338] The pushrod V8 dates to 1949 and was the standard form of American production engines through the 1980s. The 358 cubic inch displacement was standard overbore for the 350 cubic inch versions of the Ford and Chevrolet small block V8sBorg Warner manufactured transmissions used by both Ford and GM. The T-10 was their larger four speed transmission in production from 196 . Versions of the T-10 remained in use in NASCAR stock car racing through the 1990's. Ford introduced

With successive subsystems within the NASCAR stock car, innovations became accepted practice or a specific rule. As new ways of building a better (cheaper, faster, more durable, safer) stock car were sorted out, fewer areas of the chassis remained open for development. Each transition of experimental execution also meant another chunk of tacit knowledge about manipulating production technology in pursuit of speed was made explicit. Such explication existed in part as the evolving written specifications of the rule book, and in part in the physical artifacts used in competition. Though always subject to further interpretation, the rules crystallized much of the design of the stock car. Where still inexplicit, conventions held by the stock car racing community were passed from team to team, and car to car. As most NASCAR racers were willing to "read" the artifact, to look at the chassis and determine how and why much of it was built the way it was, these artifacts served to capture much of the remaining territory for the exercise of tacit knowledge. Keeping with the state of the art, where unspecific NASCAR rules still allowed interpretation, was usually required to avoid disqualification.[339] Though the net result was elimination of experimentation and the exercise of tacit knowledge from the process of creating a stock car chassis, the resulting car was very well suited to the demands of stock car racing and preserved the essential tuning operations that are central to the sport. Indeed, the negotiations and demands of the environment from which it sprang are reflected in its physical form. Because of the circumstance of its creation, the NASCAR stock car is at once inexpensive, durable, simple, safe, and the near perfect prop for producing racing entertainment.

---

the stronger, so-called "Top Loader" in 1965? A strengthened version of the Ford Top-Loader is currently standard in NASCAR stock cars. See Appendix A

[339] Amos Johnson, phone interview with the author, March 1997.

CHAPTER 5

THE RACING FRATERNITY

NASCAR formed to sanction a national production based racing series; it achieved success by organizing racing spectacle. In order to compete for the race fan's dollar, NASCAR racing had to provide consistently close action frequently enough to satisfy growing demand. Little evidence suggests that NASCAR pursued these ends with any sort of master plan. Rather, like the racers it relied on for labor, innovation, and talent, NASCAR constantly adapted to the changing atmosphere of motor sport. The power focused in the hands of Bill France allowed the sanctioning body to change direction quickly. Implementing these changes within the community of was a more complex matter bound up with the social context of stock car racing.

As their sport became an established phenomenon during the 1950s, stock car racers began to form a close-knit community linked by racing activity more than geography or class. Common experience and competitive camaraderie bound racers originating from diverse locations such as Apopka, Florida; Stuart, Virginia; and Chicago, Illinois. In addition, these drivers came from vocational backgrounds as diverse as timber dealer, airline pilot, and moonshiner.[340] The circumstance of its creation and the demands competing under the aegis of NASCAR shaped this community. The racers shared experience using production-based equipment, and responding to NASCAR rules helped create a particular form of brotherhood which provided a technical and political resource for racers. The racers also constructed a series of technical conventions and contextual best practice that governed the building of their cars and conduct at the track. These same conventions also served to keep most women and African Americans from the ranks of competitors.

Yet this fraternity of racers was not sustained by practical considerations alone. Its members shared intense experiences with, and profound appreciation for the technologies that define motor sport. These common bonds often transcended the social, economic, and, on one

[340] Glenn "Fireball" Roberts of Apopka Florida was a NASCAR competitor from 1950 through 1964. Glen, Leonard, Delano, Clay, Eddie, and Len Wood, of Stuart Virgina, began competing in 1953. As of 2003, Wood Brothers Racing is still active. "Tiger" Tom Pistone of Chicago Illinois drove between 1955 and 1968. Millionaire lumberman Curtis Turner competed in NASCAR between 1949 and 1968. He also helped finance the Charlotte Motor Speedway, completed in 1960. NASCAR competitor Smokey Yunick flew planes for Eastern Airlines before becoming a diesel mechanic and racecar builder. Bob Flock, Junior Johnson and Buddy Shuman were known to have run moonshine before (and possibly during) careers as stock car drivers.

occasion, racial relationships prevailing in larger society. As the sport matured, the community developed as a practical extension of the act of racing, providing of mutual support, organization, and practical education to its members. It evolved into an informal yet pervasive institution that maintained boundaries, created identity, and offered social structure for its members. Often used in the popular literature of motor sport, the term "racing fraternity" aptly describes the association between racers that grew with NASCAR Grand National racing.

Though many racers were not southern by birth, the focus of stock car racing activity in the southern states influenced the composition of the racing fraternity. A racing career, though stringent and demanding, provided an opportunity to escape life on the farm or in a Piedmont cotton mill. Some of the notable racers who rejected meager working class wages to join NASCAR culture were Lee Petty, David Pearson, Bobby Issac, Rex White, and Ned Jarrett.[341] Like racers from outside the South, these were predominantly young, working class men. There were numerous practical implications of the working class roots of most NASCAR competitors. The tenuous financial foundation that accompanied many departures from the working class influenced the careers of many racers. Ironically, unlike most other areas of motor sport there was relative ease of entry. Stock car racers could afford the initial investment in a vehicle because the mass production roots of Grand National racing kept the cars affordable. These small businesses also needed cash flow for maintenance, repairs, and possibly upgrades. NASCAR recognized from the beginning that paying prize money deep into the ranks of competitors would help maintain a field of competitors by permitting driver/owner entrepreneurs to keep racing.[342]

After accumulating the necessary initial capital, men who were talented enough and willing to be mechanic, manager, and tow-truck driver, could engage in racing as a small business. The case of Jack Ingram illustrates the sort of opportunity stock car

[341] Daniel S. Pierce, "The Most Southern Sport on Earth: NASCAR and the Unions," *Southern Cultures*, Vol.7, No.2, p.21,29
[342] Al Berger, "Mr. Stock Car," *Speed Age*, February 1958, p.58, "Minutes of the First Meeting," ISC archives, Daytona Beach, Florida.

racing offered ambitious working class white men who were bitten by the "speed bug." After accumulating capital enough to build a car, he began racing for a living. "I wanted to race so bad that learning to be a plumber or pipe fitter was a tool to be able to do that," He recalls,

> I served in an apprenticeship. I was a journeyman by the time I was twenty-one years old and I made a lot of money. Basically, I'd go work in these shut downs and around these paper mills and things and work a lot of overtime and I made a horrendous amount of money to be able to start racing and once I started making money with the racecar, then I of course, completely quit that.[343]

Ingram, like Lee Petty, Ralph Moody, and Glen Wood before him, had saved sufficient capital then embarked on a career in the racing business.[344]

The initial incarnation of NASCAR stock car racing intended to keep the cost of racing low and the reward structure sufficient to promote participation. The production-based vehicle formula, prize payment structure and frequency of events made "racing for a living" a possibility. Attention to cost, though it perhaps retarded technical development, kept NASCAR Grand National racing within the means of the entrepreneur well into the 1970s.[345] Though the economic structure of teams would change, the cost of racing in NASCAR never approached expenses in other racing series.

Frequently these racing ventures were small family businesses employing sons, siblings and wives that became consistent participants in NASCAR stock car racing. Often they matured into racing dynasties, some of which dominated the sport. Early

---

[343] Jack Ingram Interview, Speed and Spirit: NASCAR in America, February 2001, Smithsonian Institution Transportation Collection, National Museum of American History, Washington, DC, 11:04:40

[344] Ralph Moody worked as a mechanic, Lee Petty sponsored his early racing as a mover, Glen Wood ran a sawmill, and

[345] Interview with Henley Gray conducted by the author, February, 1999.

NASCAR champion Lee Petty quit a small hauling business to take up racing. As his wife Elizabeth Petty describes,

> We had a reaper shed. My dad was raised on a farm and he had a reaper that he cut the grain with. And that's where we started. It was just a top on it, didn't have sides, when we moved here. And Lee put sides on the building and it had a dirt floor, and that's where they worked on the car for several years. Then I suppose they put a cement floor in and then we built part of the building that's still there, the two story part of the building is out here. And then they just build a little at a time and progressed. Good or bad, that's where it happened.[346]

Like many small enterprises, the Petty racing effort involved much of the family. Lee's sons Richard and Maurice helped prepare the cars and served as pit crew while wife Elizabeth managed the household and the books for the racing business.

Growth of the sport during the 1950s, changed the structure of the teams. Though family teams remained a strong part of the sport, the mid fifties saw the emergence of other units like the Ford racing team under the direction of Indy champion Pete DePaolo, and a team of Chryslers run by Mercury outboard engine mogul Carl Kiekhaefer. Smaller teams like those run by specialist mechanics Smokey Yunick, Cotton Owens, Ray Fox, and Banjo Matthews also emerged during the 1950s. These teams, with specialist mechanics, fabricators, and part time help at the track would form the pattern for the bulk of teams as time wore on.

Though many families continued to manage race teams, the amount of labor and expertise necessary to finish well in stock car races changed during the 1960s. It became unrealistic for a family-based privateer racer to build, and drive his own car and consistently run near the front. Family-run race teams persisted, but only if they assumed the form of other, more professional race teams. Typically this entailed some

[346] Elizabeth Petty interview, "Speed and Spirit"

family members specializing in certain areas or managing specialized talent in the shop and on the track. The training of family talent into the sport as it developed would populate NASCAR stock car racing with a large number of family dynasties.

The efforts of the Wood Brothers epitomize this trend in development. During the late 1950s, team manager Glen Wood recognized that his organizational talents exceeded his ability as a driver. Instead of quitting the sport, he and brother Leonard concentrated on building excellent racecars, attracting sponsors and top drivers, and rationalizing the procedure and equipment of pit stops. While Glen assumed more management responsibility, brother Leonard concentrated on building chassis and engines. To staff the race shop and provide support at the track, relatives and friends were recruited to join the business. Glen and Leonard relied on the efforts of brothers Clay, Ray and Delano in addition to the services of their cousin Ralph Edwards and family friend Kenny Martin.[347] So successful was their transition into management that the Wood Brothers became known as "Kings of the Superspeedway." Indeed, their careful preparation and revolutionary speed in the pit stop brought them fame in the larger racing community. The Wood Brothers pit crew, which included Leonard and Glen, could complete pit stops so quickly that they were brought to the Indianapolis 500 by Ford to manage the pit stops of the winning Ford effort in 1965.[348]

Massive expenditures by Ford, GM and Chrysler during the 1960s helped change the personnel structure of most teams.[349] But despite increasing technical demands and the more rigorous schedule introduced by involvement from automakers, the transition away from a family-based business did not occur completely. Some

---

[347] "The Wood Brothers," Ford News Release,1970, ISC Archives.
[348] Lyle Kenyon Engle, *Racing to Win Wood Brothers Style*, (New York: ARCO) 1974, p.23-37
[349] In 1966 alone, Ford spent over 3.6 million dollars on stock car racing out of a total racing budget of 12.9 million, "Outline of Presentation of Ford Division Program of Racing and Related Activities for the Model Year 1967," Ford Motor Company Motorsports Collection, Dearborn Michigan.

transitioned to larger enterprises employing relatives to manage specialized help. Other privateers continued to campaign Grand National cars using only siblings, children, spouses and pick-up help. Among others, Wendell Scott, the only African American driver ever to consistently campaign a car in Grand National events, and his friend Henley Grey managed to continue simple, largely solitary racing campaigns into the 1970s.[350] Though the demands of keeping up with the NASCAR schedule would eventually force owner/mechanic/drivers into the slower ranks of competition, the model of the individual entrepreneur persisted into the 1970s.[351] These "small business racers" enhanced the entertainment value of events, by filling the field of competitors and perpetuating a regional grass-roots association with the sport.

Because the "formula" for a NASCAR stock car depended on mass-produced components, the cost never approached that of racing a purpose built racecar. Even where components were replaced with stronger parts, purpose-built for stock car racing, their original design was typically derived from a simple production component. This simplicity of design, combined with weight limits and specifications that prohibited special materials, kept the cost of parts low. For NASCAR, lowering the threshold of entry helped fill the field with competitors and thus the grandstands with paying customers. Over time, the logic of maintaining low cost for participants, encouraging consistent participation, and reliably presenting entertaining spectacle secured the relationship between NASCAR and the community of stock car racers.

Though modest, the consistent income from prize money of NASCAR Grand national racing did allow many working class whites to begin small racing businesses. Unlike other forms of motor sport, NASCAR stock car racing paid prize money deep into

---

[350] Henley Grey, phone interview with the Author, Winter 1999.
[351] Examples of privateer/ near privateer racers include Henley Gray, who built and campaigned his own car from 1965 through 1977, Wendell Scott, who campaigned from 1959 through 1974.

the ranks of finishers. This relatively flat distribution of prize money helped offset the expenses of those racers finishing in the top 20 places. The two percent of total prize money offered the 20th place finisher in Grand National events was far greater than other national forms of motor sport. In AAA, for example, prize money payouts seldom reached below tenth place.[352] The payout structure for NASCAR sanctioned events clearly intended to provide enough economic reward to attract consistent fields of competitors. Even if during the early 1950s the total purse might have been meager compared to AAA Big Car championship races, the spoils were spread widely.

From the onset of NASCAR competition, the flat pay structure helped build a loyal base of racers. Early participants, if they were committed and talented, were able to make a modest career of stock car racing. The opportunity to build, own and race a car in a national championship was unique to NASCAR. This form of entrepreneurial racing was more common among mechanically inclined working class men. Unlike those who raced using purpose-built cars, individuals like Lee Petty, Marshall Teague, Ralph Moody and Glen Wood could expect to make a decent living as entrepreneurial stock car racers. In the Big Championship car series, the Sprint series and even at the top levels of Midget racing sanctioned by the AAA, the roles of driver and owner were typically distinct. By building their own car, transporting it to competition themselves, and finishing most of the time, stock car racers could realize a decent living. This form of ownership and participation, drawn directly from more humble ranks of modified stock car racing, was possible because of the pay structure. In turn, the commitment necessary for this form of ownership built close ties among the community of racers.

Though this pay structure was, no doubt, popular among racers, it also served the best interest of NASCAR. Pay deep into the ranks at the close of each contest

[352] The 1951 NASCAR rule book describes the distribution of award money as low as 20th place, the 1947 and 1953 AAA rule books indicate that payment of prize money was left to the discretion of the promoter.

helped keep racers involved and the starting grid full at the beginning of each race. For some racers, even meager winnings often made the difference between competing and skipping an event. When asked about her role as bookkeeper for her family's race team, Elizabeth Petty modestly commented, "Well, when you don't have a lot it don't take a lot. You just have to hold on a little tighter."[353] Early stock car racers mainly considered competition a subsistence-level business as much as a sport. When asked about getting ahead in the stock car business, Mother Petty comments that, "I never looked at it like that. Whether the men are living, and if we did real good on Sunday, we didn't do any different that week. We'd have gotten another part for the car but outside of that, we just went and enjoyed it."[354] For the Petty's, though wining was important for making a living, sustaining a life in racing was the first goal.

Throughout the 1960s, even as NASCAR racing began to attract large sponsorships from nationally known businesses, NASCAR maintained a schedule suited to the needs of the small entrepreneur racer. In order to make a go of racing as a career, drivers needed ample opportunities to win money, and reasonable assurance that their competitive efforts would yield some amount of payout. Though some of the larger factory teams only went to high-publicity superspeedway events, NASCAR continued to sanction large number of race events in the Grand National series. Having as many as sixty-two events each season offered small-time competitors ample opportunity to win prize money.[355] Frequent opportunities to win money, even with only a mid-pack finish, helped keep small-time efforts viable.

NASCAR also cultivated allegiance among the small-time racers who composed the bulk of their labor force by provided disincentive to racing in events staged by other sanctioning bodies. In response to similar actions by the AAA, NASCAR rules for 1951

[353] Elizabeth Petty interview, Speed and Spirit
[354] Ibid.
[355] Greg Fielden, *Forty Years of Stock Car Racing*, Vol. 1-3

prohibited members from competing in races not sanctioned by NASCAR.[356] Racers who raced in unsanctioned events faced the possibility of losing any points they had earned toward the NASCAR national championship. Persistent participation in such events, as was the case with racers like Marshall Teague, and Frank Mundy, led to suspension and eventually permanent expulsion from NASCAR. With the demise of the AAA contest board in 1955, and the subsequent creation of the USAC sanctioning body in 1956, the NASCAR prohibition against racing under other sanction was maintained until June of 1965 when NASCAR and USAC agreed to use the same set of rules for cars, effectively making USAC a farm league for NASCAR.[357]

Linking enough tracks together to form a truly national championship for production-based cars was the first key to creating a motor sport where commercial concerns, rather than the largess of car owners, would dominate the course and conduct of events. Linking enough levels of grass roots racing together to perpetuate production-based racing supported the success of the Grand National series. Most of participants came to NASCAR Grand National from a seemingly endless supply of racers with experience in small-time, grass roots racing. In laying claim to *all* production-based racing activity when formed, NASCAR effectively set up farm leagues to feed racers into its premier series. Though the AAA had sanctioned strictly stock racing before and after World War II, it was regarded as second rate by much of the contest board. Promoters, racers and localities that could not afford or attract exhibitions of purpose built racecars in competition often "settled" for events using stock-based equipment. By sanctioning races for modified, and sportsman classes of cars, NASCAR tapped into a vast quantity of local, grass roots racing enthusiasm. By providing centralized planning, rules, and

---

[356] American Automobile Association Contest Board Official Bulletin, March, 9, 1950, Smithsonian Institution Transportation collection, NMAH, Washington DC.
[357] Alan Girdler, *Stock Car Racers: The History and Folklore of NASCAR's Premier Series*, (Osceola, WI: MBI, 1988) p.68, Fielden, vol. 3, p.13.

record keeping, NASCAR controlled an entire constellation of grass roots motor sport that had grown as outlaw racing venues, equipment and events outside the sanction of the AAA. By organizing several ranks of racing that utilized production-based cars, NASCAR encouraged racers to work up the ranks into the Grand National series.

Despite the possibility of working into the premier Grand National Series, a racing career was not necessarily easier than working as a tradesman or machine operator. Jack Ingram recalled the sort of commitment required to make a business out of racing.

> There's been hundreds of time that I'd be coming home from a trip to a racetrack and getting daylight Sunday morning and see people dragging their boats to the lake and beer cooler in the back and going to have a big time and the time I got home on Sunday, I was so tired I couldn't even move until Monday some time, but I was still doing what I wanted to do but you couldn't accomplish that in racing if you took these times off to do these things. There was no time. There was absolutely no time. Anyone that does anything good spends a horrendous amount of time doing it.[358]

Even if it was more demanding than wage work, racing offered the intrinsic reward of challenges met.

Any career in stock car racing during the late 1950s and early 1960s demanded a huge amount of time and effort. As two-time NASCAR Grand National champion Ned Jarrett recalls,

> we were running from 45 to 60 races a year back then. And many of those, the majority of them were 100 mile events, 200 laps on a half a mile track basically. If it was a quarter of a mile track which we ran some of those, you might run a 250 lap race. And that was the situation too where you would just go in for the day, practice maybe for an hour and qualify and then run the race that same

[358] Jack Ingram, Speed and Spirit Interview, Spring, 2001, 17:42:50

evening. So it was not uncommon back then to run as many as three races a week.[359]

As Ingram indicates, racing for a living left little time for friendships or experiences outside of the racing community. A strong passion for machines, speed, and winning, second only to plenty of time to devote to racing, seemed a prerequisite for successful racers.

Enthusiasm for the attention of fans, profound fascination with machines, and joy in the competition of motor sport helped offset the personal demands racing imposed. Racing mechanic Ray Fox described the difficulty of balancing business obligations and family responsibilities. “Back in them days you worked your life — you worked night and day racing -- doing something on the racecar, doing something on an engine, talking to your wife to keep from getting a divorce because you were gone all of the time. It was really rough.” [360]

If the opportunities offered by stock car racing were no less work than life in a textile mill, or as a pipe fitter, why did people choose a life in racing? The risk of financial insolvency or personal injury far outweighed the potential for profit and status that accompanied a successful racing career. It seems clear that choosing racing was not just a business decision. As Robert C. Post has suggested for drag racers, perhaps the combination of “ingenuity and action” offered as powerful an inducement as fame and financial reward.[361] Racers working in the NASCAR Grand National series were bound together by common enthusiasm for competition utilizing technology. These guys simply loved cars, and loved to race. This fascination with cars and automotive

[359] Ned Jarrett interview, Speed and Spirit: Spring, 2001, 21:17:53.
[360] Ray Fox interview, from Speed and Spirit: Spring 2001 21:17:53.
[361] Robert C. Post, *High Performance: The Culture and Technology of Drag Racing, 1950-1990*, (Baltimore: Johns Hopkins University Press) 1994, p.329.

competition was powerful enough to draw some racers to NASCAR events from an early age. As Jack Ingram recalls,

> Basically, I got interested in racing probably when I was about fourteen years old. I didn't even know that there was a racetrack in our part of the country, which was Asheville-Weaverville. I saw a poster on a telephone pole such as they use to put for racing and wrestling and all kind of things. That's the only way they had to advertise and I saw this poster and we was about twenty-fives miles away from Weaverville Speedway where we lived and a couple of us, believe it or not, rode bicycles all the way to there and back and we never — got back way late Sunday night. The dirt track was dusty all over. But just from seeing those racecars on that poster — I'd never saw one of them. The letters and the wheels, fenders cut out the numbers and all that stuff, it just amazed me. We would walk to the store and whatever, like everybody else did back in those days in the country and country store and every car come by — I could name every car and what model it was and I was always interested in cars and once I saw that race, every opportunity I had to get around the racecar that's what I did."[362]

Mechanic Ray Fox experienced similar enthusiasm. He recalls, "I loved racing, I love to see racing, I love to read the stories about racing that went on back in them days you know when they raced on the beach and did record runs on the beach and things like that. I used to love that. I ate that up."[363]

For NASCAR stock car racers, a powerful fascination with using machines in competition, and perhaps the lure of a racing lifestyle, helped them make the decision to work as a racer.

---

[362] Jack Ingram interview, Speed and Spirit, Spring 2001.
[363] Ray Fox interview, Speed and Spirit, Spring 2001.

Bobby Ingram also suggests that, racers shared a fundamental fascination with automotive technology. Their experience with racing translated this fascination with machinery into powerful sensory experiences. Racers were closest to the speeds, smells, heat and sounds of racing competition. Experiences with high performance equipment strengthened community by offering common reference for members of the community. For example, competition using complex technological systems provided circumstances where innumerable factors could provoke failure. Automobile racing was a capricious undertaking. An error in judgment, lax component quality control on the assembly line, or even the weather can bring about utter failure just as quickly as inexperience or poor preparation. As a part of weekly competition, intense and unpredictable struggles with human and technological performance occurred in close proximity to other racers in the garages, paddocks, and pit roads of the race circuit. The capricious fortunes inherent in auto racing provided ample opportunity for celebration or commiseration of shared experiences.

Competing regularly required intense commitment from stock car drivers, mechanics and owners. Strong devotion to such a dangerous sport automatically set racers apart from ordinary, risk-averse citizens. The time required to be a racer allowed little opportunity to share the interests and experiences of "normal" folk. Instead, racers mastered esoteric subject matter and shared a nomadic existence following a full schedule of racing events. Separation was also fostered by generally held perceptions of racers as rough, irresponsible hooligans, a perception that was not wholly inaccurate.[364] Always traveling from show to show, they were regarded in a manner similar to circus folk or gypsies. Indeed, one of NASCAR's greatest challenges was selling stock car racing as a respectable activity. As Ned Jarrett recalls,

[364] Kim Chapin, *Fast As White Lightning: The Story Of Stock Car Racing*, (New York: Three Rivers Press) 1998, p.24-26.

> After that first race my dad set me down and we had a long talk. I was 19 then and he pointed out how hard he had tried to work to build respect in the community and he didn't see where my participating with the people who were involved in racing back then could do too much to add to the image that he'd worked so hard to try to build in the community. Because most of the drivers back then were either considered to be bootleggers or just a bunch of fools that didn't have any better sense then to get out there and risk their necks.[365]

If enthusiasm, long hours, and danger set racers apart from society, it also helped bind racers together. Persistence, mechanical aptitude, hard work, fearlessness, and a highly competitive personality were the criteria by which racers judged each other. In describing the acceptance of her father in the world of NASCAR stock car racing, Janice Davis recalls that her father, the African-American Wendell Scott, "earned their respect. They knew he was an excellent driver," She continued.

> I've seen him turn over, get out one night in Greenville. The car was sitting up on the side and he jumped out of it. They threw the caution flag out but they didn't need it for him. He jumped down, rocked his car back down on all four wheels and took off again. He was adamant about racing, he loved it and he did a wonderful job. I've seen other drivers spin out and Daddy would miss the wreck and you wonder how in the world did he get through that pile of mess and here he comes. He's just a real go-getter and super skillful driver.[366]

Though the segregationist context no doubt made skin color an issue among NASCAR racers on occasion, Davis recalls a community where achievement and competence

[365] Ned Jarrett interview, Spring, 2001. 20:14:09
[366] Janice Deborah Scott Davis interview, Speed and Spirit, Spring 2001.

were often valued above race or ethnicity. Performance with technology more than social conventions shaped relationships within NASCAR.

The rigors of a schedule built around the championship circuit, a yearly journey that takes teams to venues spread around the country, also helped cultivate a sense of cohesion around the daily trials of being a racer. For around forty weeks a year, racers worked alongside each other to create competitive spectacle. Racing schedules that typically included long hours of work at the track and exhausted nights sequestered in hotels helped build community through shared experiences. This close-knit community functioned in many ways like a fraternity.

Though the label “fraternity” conjures familiar images like houses filled with beer guzzling undergraduates, or service-minded lodges replete with middle-aged burghers, unusual hats, and bingo tournaments, fraternal structure offers a useful organizational description. Indeed, the often-used term “racing fraternity” describes an organizational matrix that closely resembles more formally defined fraternities. That NASCAR is not formally regarded as a fraternity does not mean that its rules and practice form a tacit fraternity equivalent to more traditional masculine organizations. By defining the practice and boundaries of the racing fraternity, we can compare it to a traditional fraternal structure while developing an understanding of the negotiations and regulations that created and preserve gender as an organizing bias within the sport.

Though not formally defined as a brotherhood, racers act in many ways to promulgate and enjoy the advantages of fraternal membership. Besides occasional reference to themselves as a fraternity, NASCAR racers exhibit other features of more traditional fraternities such as the Masons, Moose or Knights of Pythia. In her masterful discussion of the elements of fraternal construction, Mary Ann Clawson describes

several distinguishing features. [367] As with Clawson's example, members of the NASCAR community employ masculinity, ritual, a perspective organizing their immediate world into groups, and proprietary information to create distinction between themselves and larger society.

Perhaps the most obvious and most conventional of these features was its masculine constituency. Racers are almost exclusively male. Culturally defined gender roles suggested that where not working in a controlled environment, women should be confined to the domestic sphere. In 1950s America, it was generally thought that women should not engage in dangerous professional sports. Though NASCAR racing initially welcomed women drivers, they were not able to continue competing much past the initial organizational phase. Though Sara Christian, Ethel Flock, and Louise Smith were competitive when they participated (Christian finished as high as fifth in the seven races she competed in), but their appearances were likely as much a publicity ploy as an attempt to bring women into motor sport.[368] Traditionally it was thought to be bad luck to have women track-side, and by the mid-1950s, NASCAR Grand National racers were all men. This masculine exclusivity was even institutionalized. By 1955, women were officially excluded from participation in the sport. As Drew Bledsoe writes,

> To be a race queen is about the only way a woman can be involved in big-time stock car racing. Oh, wives and girlfriends of drivers are allowed to keep lap scores, but there are no women drivers, no women mechanics, or crew members. No women but race queens. . . Indeed, until 1973, when a female

[367] Mary Ann Clawson, *Constructing Brotherhood: Class, Gender and Fraternalism*, (Princeton: Princeton University Press, 1989) p.38.
[368] Peter Golenbock and Greg Fielden, *The Stock Car Racing Encyclopedia*, (New York: Macmillan, 1997), p.168. Sara Christian, driving a car owned and prepared by her mechanic husband placed as high as fifth in a Grand National event.

> photographer threatened to bring suit, women were not allowed in the pits of most of the big stock car tracks.[369]

As a fraternity, NASCAR racers defined themselves through engaging in activities that were primarily considered masculine by larger society.

In "*Shop Floor Culture, Masculinity and the Wage Form*," Paul Willis writes, "One of the marks of the lived and contemporary culture of the shop floor is a development of this half-mythical primitive confrontation with the task. It is a familiarity and experiential sense of control of technology, or at least of sharing its power."[370] This relation to technology, though describing factory production, is consistent with the rural tradition described by Ronald Kline and Trevor Pinch where, "competence in the repair and operation of machinery formed a defining element of masculinity."[371] As a publicly visible shop floor built through the patronage of largely rural fans, the pit arena reinforces conventions that suggest technically difficult and physically demanding work is best left to male hands.[372] Within racing, especially within the pits, we find a re-creation of the masculine circumstance of production. Willis describes this gendered arena, a place such as the "hot pits," where "Difficult, uncomfortable or dangerous conditions are seen . . . for their appropriateness to a masculine readiness and hardness."[373] The absence of women from the scene of competitive action infers that they are somehow unsuited to the intense, technically demanding productive efforts of the racing world.

---

[369] Jerry Bledsoe, *The Worlds Number One, Flat-Out All-Time Great Stock Car Racing Book*, (Asheboro, NC: Down Home Press, 1975), p.89
[370] Paul Willis, "Shop Floor Culture and Wage Form," *Working Class Culture: Studies in History and Theory,* Eds. J. Clark and R. Johnson, (New York, St. Martins Press, 1979) 1979.
[371] Ronald Kline and Trevor Pinch, "The Social Construction of the Automobile," *Technology and Culture*, Vol. 37, No. 4, University of Chicago Press, p.763-795.
[372] Virginia Scharff, *Taking the Wheel: Women and the Coming of the Motor Age*, New York, Free Press, 1991.
[373] Willis, p.190.

The idea that stock car racing celebrates mechanized danger is not new. Among historians of Southern culture, stock car racing is regarded as a modern extension of traditionally violent and competitive themes in Southern life. Historian Pete Daniel asserts that "Stock car racing combines Southerners' love of automobiles, daring, violence, heroes, and hell-raising."[374] In *Honor and Violence in the Old South*, Historian Bertram Wyatt-Brown describes how "Southerners . . . loved sports, hunting, games of chance and skill - in fact, any event that promised the excitement of deciding the inequalities of prowess among men, or among men and beasts." [375] Twentieth century substitution of racecars for swift horses continues such dangerous contests wherein Southern men assert their masculinity.

The aura of violence surrounding stock car racing was most likely a consequence of the production origins of the racecars and the culture within which they were raced. Though racers died with regularity in open wheeled cars, wrecks during those events were an exception, not the norm. Also, racers who perished in a purpose-built, open-wheeled racing car were operating equipment outside the experience of most observers. Some-time NASCAR competitors Jimmy Clark, Swede Savage, and Marc Donohue all died racing purpose-built cars far from any NASCAR event. Yet stock car racing was considered dangerous and violent because the cars let it appear so. First, the cars looked like regular street cars, so any violence or injury in competition appeared more threatening to the public. The vicarious association possible between street cars and the cars on the track that served as such a powerful sales tool, also amplified any negative

---

[374] Pete Daniel, *Standing at the Crossroads*, Baltimore: MD, The Johns Hopkins University Press, 1986, p. 199.
[375] Bertram Wyatt-Brown, *Southern Honor*, (New York: Oxford University Press, 1986), p.131, Frank E. Vandiver, "The Southerner As Extremist," *The Idea of the South: Pursuit of a Central Theme*, ed. Frank Vandiver, (Chicago: University of Chicago Press, 1964) p.43-55, Edward L. Ayers, *Vengance & Justice, Crime and Punishment in the 19th-century American South*, (New York: Oxford Univeresity Press, 1984),p.3.

connotations of stock cars on the track. Wrecks were considered more violent because observers could identify with the equipment involved. Second, the production origins of the NASCAR racecar allowed more frequent contact on the track. Unlike the open wheel racers at the Indianapolis 500, or the lightweight sports cars and dragsters, the rugged NASCAR stock car could withstand dramatic amounts of damage before it was disabled and the occupant killed or maimed. The affordability of stock cars and the robust roll cage required by NASCAR also permitted more frequent contact between competitors. Consequently, most crashes were not exceptional events. Competitors routinely bumped as part of competition. Physical contact between competing vehicles was not tolerated or even possible in other forms of motor sport. The perceived rough and tumble nature of many stock car events brought on the disdain of competitors, fans, and journalists accustomed to more traditional motor sport.

That the cars could withstand punishment did not, of course, guarantee that dangerous fender-banging would occur. The background of many of the competitors further enhanced the possibility of violence. When asked how occasional rough racing was handled off the track, two-time national champion, race track manager, and racing broadcast announcer Ned Jarrett explains of one competitor,

> Well Ralph Earnhardt normally would come to you and put his arm around your shoulder and he would make an excuse. But you knew back… in the back of your mind that you was going to get him back. And normally did, but he was one driver that you could never catch up with. I mean you know if you pushed him off the track once, he'd get you twice and you knew that going in but you still had to do it every once in awhile and that's the way most of the time that it would be settled is that you'd just return the favor somewhere along the way.
>
> You never wanted to wreck anywhere where there would be a possibility of them getting hurt. But if you nudged them out of the way, knock them up in the groove

where you could get by me, well you know that was sort of accepted back then. Maybe, didn't like it but you know that's just the way it was.[376]

Ned Jarrett, is by no means alone among NASCAR racers in occasionally resorting to force. Numerous accounts by drivers, mechanics, and even NASCAR officials document the presence of violent behavior in competition and elsewhere at the track.[377] Clearly the use of violence was accepted by stock car racers as justified when it served a noble, or at least useful, end.

Regarding the occasional continuance of racing conflict in the infield after race's end, Jarrett comments that,

> occasionally people's tempers would flair to the point that they would get in a fight, either the drivers or the crew members or a mixture of them, whatever it might be. Sometimes there'd be some pretty good brawls. You might have six, eight, ten, fifteen people involved in a fight and you know that was just sort of the way that it was too. I was one of those that didn't necessarily think that was the way to do it because first of all I didn't want to get hurt and then next I've always felt that there is a better way to settle things than beating up on somebody's body or letting them beat up on you. I just never felt that was very smart.[378]

Smart or not, the violence of contestants was an inevitable part of racing among highly competitive men in vehicles that could withstand aggressive tactics and an atmosphere that condoned the excitement produced by such tactics. Violence was a frequent part of working class life in the South. Accepting violence as a part of racing was one pre-

---

[376] Ned Jarrett interview, Speed and Spirit: Spring 2001.
[377] Louise Smith interview, Speed and Spirit, Spring 2001. Woman Driver Louise Smith who describes "working on" one racer attacking her friend Buck Baker with a tire iron. Account of conflict between NASCAR racers and disappointed fans following the aborted race at North Wilkesboro in 1962. Reportedly a NASCAR official cleared a threatening mass of fans by striking one of the ringleaders with a section of 2 x 4.
[378] Ned Jarrett interview, Speed and Spirit, Spring 2001.

condition for inclusion in the informal fraternity of racers at the core of NASCAR competition.

Apparently being white was another pre-condition for membership in the NASCAR fraternity. During the ascendancy of NASCAR, tensions over desegregation, the civil rights movements and issues of race were minimal within the stock car racing community. This was likely because there was little chance of African Americans threatening the world of stock car racing. Though Wendell Scott, the sole African American competitor, was widely respected as a racer, there were no other sustained attempts by other persons of color to participate in stock car racing. The presence of such a close-knit community of white racers was probably intimidating to any outsider. Moreover, the difficulty of succeeding even if you did not draw controversy because of your skin color, most likely quelled the ambitions of most would-be African American stock car racers. The racial strife outside of NASCAR was probably not much of an issue because only one African American driver was willing to participate. Under these circumstances Scott was accepted by the predominantly white racing fraternity. Scott's daughter recalls how many stalwart NASCAR competitors were friends with her father. She lists, "Earl Brooks, Tommy Pistone. I think was his name. And of course Richard Petty, David Pearson, Cale Yarbrough. What's this other man's name? He had a round head, gray hair? … Henley Gray." [379] It should be noted that these racers were not on the periphery of the racing fraternity. Rather, they compiled some of the more active and successful careers in the sport, with over 3000 starts and 13 national championships between them.[380]

---

[379] Janice Deborah Scott Davis interview, Speed and Spirit, Spring, 2001.
[380] Golenbock and Fielden, Brooks 262 starts, Pistone 131 starts, Petty 1184 starts and 7 championships, Pearson 574 starts and 3 championships, Yarbrough 559 starts and 3 championships, Gray 374s starts.

Yet despite such acceptance of a token black participant, by the middle of the 1960s much of NASCAR racing took place in a region noted for racism. Ashley Scott relates how, despite her father's racial tolerance in the racing fraternity, acceptance was not universal. She describes one encounter with racism at the racetrack. "We were at, I don't know which race it was, we were in the infield and the race was over with and Deborah and I were walking through the racing infield and a man came up and he said something ugly," Scott recalls.

> I don't know if my sister Deborah heard him or not but I did and I didn't say anything ugly because I knew I wasn't suppose to say a bad word. So I just took my foot and I kicked him in his crotch because I knew that's where it would hurt most and I grabbed Deborah's hand, I said, 'Deborah come on we got to go, we got to go'… I had thought I had won that little war, it probably wasn't even a battle from the start but I just didn't like what he said. And what he said to me, Daddy I'm sure had been called that a million times but he was able to ignore it and I didn't.[381]

Her description is telling. It suggests that whatever appearances, skin color was never far from becoming an issue. Though Wendell was tolerated by all and a genuine friend to many, the barriers to entry, both financial and social, were likely too forbidding to facilitate the widespread participation of African Americans. These implicit constraints likely served to keep the constituency of the NASCAR fraternity white male.

Another feature of stock car racers that is consistent with more conventional fraternities is the practice of public rituals to build solidarity. Like most sporting contests, racing is a highly ritualized phenomenon, and like other motor sport contests, NASCAR racing included specific public rituals. Qualifying, inspection, alignment of the racecars in

[381] Janice Deborah Scott Davis interview, Speed and Spirit, Spring, 2001.

order on the starting grid before each race, rationalized ritual of the pit stop, and the victory circle ceremony immediately following the race are all elements of public ritual where the racers demonstrate what separates them from society at large.

The pit stop, an instance during competition where many members of each team are called on to contribute, offered an excellent opportunity to earn track position through rationalized and intensified accomplishment of maintenance tasks. Action to this end within the dangerous competitive arena enhanced the spectacle of competition and provided an opportunity for masculine confrontation with the competitive task. As a necessary break from action on the track, the pit stop came to constitute a vital part of the main shared resource of the racing fraternity, the spectacle of masculine work within a dangerous, potentially violent context.

Beginning in 1962 the Wood Brothers Racing transformed the pit stop ritual into part of competitive spectacle. By improving the tools and organization of the pit stop, organizing in detail each crew members responsibility and enlarging the pump cylinder of their hydraulic jacks to lift a car in three handle strokes, they shaved precious time off hitherto haphazard pit stops.[382] Up until that time, pit stops were relatively disorganized and relaxed affairs using unmodified mechanics tools and no particular organization. Other teams continued to use slower conventional hydraulic floor jacks, requiring up to fourteen strokes, until they caught on to the Wood Brothers clever time-saver. Soon they too followed the closely planned division of labor, implementation of specialized tools, and management hierarchy. Through specialized modification of standard mechanics tools and time efficient organization of previously hurried but haphazard actions, the Wood brothers introduced the deliberate, mechanized rationalization of the pit stop ritual.

---

[382] Peter Golenbock, *American Zoom: Stock Car Racing from the Dirt Tracks to Daytona*, (New York: Macmillan General Reference, 1993), p.143

Because NASCAR prohibited additional development of the equipment, there was minimal subsequent adjustment to the pit stop ritual.

Competition between teams spread into the pits as the efforts of the pit crews became ever more important to the outcome of the race. The equipment of the pit stop - racecars, and familiar shop tools introduced elements of danger, power, speed, and routinely efficient action to which participants and fans responded with vigor. Exercising proprietary knowledge and arrayed hierarchically, the racers serviced their cars in a thoroughly rehearsed ritual of masculine mechanical virtue and productive organization.

The one “exotic” piece of equipment used that has no direct relationship to equipment commonly found in a garage environment, was nevertheless of common origin. The eleven-gallon fuel “dump” cans that matched specialized receptacles on the cars to permit rapid tank refill were originally built of two five-gallon buckets welded together with a funnel on one end.[383] The remainder of the equipment utilized in the pit stop closely resembled tools regularly found in most professional automotive shops, The cars were raised for tire changes with specially built, lightweight hydraulic jacks resembling the floor jacks of a typical automotive garage. Modified pneumatic impact wrenches, again similar to equipment used by the average mechanic, equipped with modified deep-well sockets were used to change tires quickly. Modifying regular tools to provide exceptional service in the pit stop was a cost effective way to keep ritual within the grasp of most racers. Also, by keeping the ritual familiar, the regular-looking equipment heightened the suggestion of special skills at work in the very rapid ritual of the pit stop. The implementation of specialized equipment and rehearsed actions allowed seven crew members to drop the time needed time to service a racecar from a few minutes in 1962 to under twenty seconds by 1979.

---

[383] NASCAR, *1958 Stock Car Racing Rule Book*, (Daytona Beach: NASCAR, 1958) p.33

Besides masculine confrontation with technology, the fraternal format ensured adherence to and acceptance of hierarchy. The propriety of hierarchical relationships in traditional fraternities was organized around a system of degrees of brotherhood directly associated with levels of ritual achievement and experience.[384] Within stock-car racing these degrees were defined in relation to skill accumulated and the responsibility of command during competition. One's position within the racing fraternity's hierarchy depended largely upon investments in time and subsequent mastery of race technology. Crew chiefs, the commanders of the pit area, were required to possess experience as crew members, mechanics, and often as a driver before they were given charge of managing a race. By keeping technological mastery contingent upon participation, and by revising the competitive terrain through application of the spirit of competition, NASCAR ensured that experiential knowledge and relationships were of paramount importance. In this way, the rules indirectly mandated hierarchy in the pits. The central governing institution, NASCAR, indirectly implemented a fraternal structure through the medium of the race vehicle.

Ritual action also reinforced the gendered nature of the racing fraternity. Following each race, a beauty queen representing a major sponsor or the race promoter, bestowed a kiss upon the winning driver. The beauty queens typically wore a sash and a sheer dress or bikini, and were known by epithets such as "Miss Pure Firebird Gasoline" or "Miss Martinsville."[385] Though symbolic, the public award of physical favors represented fraternal conquest of the objectified woman. Although this ritual persisted, it was tamed over time through the gradual adoption of additional garments for the race

---

[385] Bledsoe, p.88

queen. By 1979, race queens typically wore less revealing halter tops and tight long pants.[386]

Ritual also extended onto the racetrack and into the realm of competition where a code of behavior informed the actions of racers. Buddy Baker has described how on the track courtesy was important to Richard Petty. Because championship points were distributed deep into the field of finishers, and because one premium quality of a true racers is persistence, Richard Petty insisted on continuing in competition even when a top finish was impossible. Baker recalls,

> being around Richard probably helped me as much to grow up and understand that if you don't win, if you do your best, I mean he had an old saying, if something happens to our car that it's not 100 percent we stay out and let the guys that move over for us every week go by us and show them the courtesy. So when we're running well the next week they'll do the same for us. We don't pull in, we don't quit.[387]

By remaining in competition and extending courtesy to all other drivers, regardless of position in the championship race, Petty was fulfilling proper racing ritual.[388]

In addition to behaving in a manner consistent with social conceptions of masculinity, stock car racers organize their world according to their public lives as racers. Put simply, fraternity members and stock car racers operate within a world defined by group identities. Like the local chapters or lodges of a typical national fraternity, race teams operate as the basic subsets within the larger racing fraternity. For members of the NASCAR racing community, the corporate idiom seemed to operate on

---

[386] Fielden, Vol.1-3.
[387] Buddy Baker interview, Speed and Spirit, Spring 2001.
[388] Though it could be argued that Petty was also trying to keep his sponsors product in the public eye, and that even a few championship points were worth the trouble and danger of continued competition, such persistence was a matter of course. Even when out of contention for points, and even at the expense of damaging equipment, most NASCAR racers continued to compete until their cars cannot move.

two levels. Racers identified themselves first as racers, and second as members of a specific team. The fluidity of personnel moving between racing teams suggests that for most racers an allegiance to the broader community of stock car racers was greater than loyalty to a specific team.

As the series began to attract larger corporate sponsorships and uniforms became commonplace during the 1960s, the outward appearance of the automobiles and the racers began to convey the corporate idiom in literal fashion. As the 1960s saw the increased participation of automakers and direct sponsorship from large car dealerships, paint schemes and the outward exterior of the cars became valuable advertising space. The identity of racers and the team they were affiliated with became increasingly clear as trademarks and advertising appeared in ever enlarging form on the fenders and shirts of racing cars and teams. Like the car, the men that worked at the race track in public view advertised for a sponsor. The growing similarity in the visual appearance of car and clothing of team member became both a symbolic and practical representation of the commercial component of NASCAR racing culture.

Racers also defined the boundaries of their sub-culture in ways similar to fraternities. Both groups, literal fraternities and the “racing fraternity,” rely on the control of information for cohesion. As Clawson describes, fraternal structure is defined and sustained through the creation and control of proprietary knowledge. Such secrets for racers generally include details of rules and current technology, knowledge of competitive techniques, and more mundane information such as what hotel parking lots can accommodate racecar trailers and the best locations to eat while traveling between races. Such knowledge can be applied to the day-to-day demands of racing and distinguishes members from non-members. Though purely practical for racers, much of this information, especially that dealing with racecar tuning has little practical use outside the competitive context.

Such knowledge was shared only after a racer had earned the respect of his peers. Jack Ingram describes how a more experienced racer helped him master a difficult combination of car and track. “Ralph Earnhardt had the biggest impact early on in my career,” stated Ingram.

> When I first started driving at Asheville, Ralph was racing there -- weekly races and I was wrecking every time I got to the racetrack. Well, Ralph never talked to people much. He just kind of stayed to himself. But he walked over to me one night after I’d been there about half the season in 1963. He said, ‘Boy, if you quit driving that car faster than you’re driving it, you’d do just fine.’ He turned and walked away and I said you know old Ralph is trying to tell me something. I’m gonna finish this race I don’t care who outruns me. And I — prior to that I just tried to race with them people and obviously I couldn’t. I’d lose control and wreck. Well, that night I wound up finishing eighth or ninth out of about eleven cars finished and I was proud of myself.[389]

Though not specific, Earnhardt’s philosophical message about the proper mindset for competition was useful within the fraternal idiom.

Though racing technique was important, probably the most extensive realm of proprietary knowledge was the understanding of rule interpretation possessed by an experienced racer. Though outlined in the Rule Book, NASCAR rules permit broad interpretation. As discussed in an earlier chapter, one example of such liberal interpretation was the caveat permitting modification of suspension and steering components in the interest of safety. In practice, these components were heavily modified in the interest of safety and performance. Knowing how far a design could be stretched was unwritten, proprietary knowledge common to stock car racers.

---

[389] Jack Ingram interview, “Speed and Spirit: NASCAR in America,” Spring, 2001, Smithsonian Transportation Collection, NMAH.

Other knowledge, more experimental than tricks-of-the-trade, was significantly harder to come by. Smokey Yunick, one of the top NASCAR mechanics during the first twenty years of the sport, built his racecars in a concrete block shop separate from the truck repair shop that was his primary means of income. The isolation of his race shop, with translucent frosted windows to prevent prying eyes from discerning crucial details of his consistently quick cars, is analogous to other secret spaces maintained by traditional fraternities. Yunick would allow access, but only to certain other racers and never to his truck shop employees or the general public.

The formal structure of fraternal life as maintained and experienced by the NASCAR racing community served to build an exclusive community of working class, white men willing and able to commit to racing as a career. Clearly, while providing boundaries that protected and educated members, the structural elements of masculinity, ritual, collective identity and local knowledge also served to exclude. For this reason, while NASCAR was becoming one of the more successful racing series it also became one of the most homogenous. Even as other racing series embraced foreign and non-white racers during the 1960s, NASCAR racers became a tighter, less diverse community.[390] For this reason, questions about how well other, non-white, non-male groups might have performed will forever remain unanswered.

Though identified with these attributes, the fraternal nature of the stock car community does not end with the behavior and disposition of racers themselves. As with more intentional fraternal organizations, the racers depended on centralized direction. The sanctioning bodies that regulate racing mimic the role of centralized governing entities within traditional fraternities. By writing and enforcing rules that organize and

[390] During the 1950s and more during the 1960s the Indianapolis 500 accepted foreign born competitors like World Champion Formula One Drivers Juan Manuel Fangio, Jimmy Clark, Denny Hulme, and Jochen Rindt.

sustain exclusive knowledge systems, public rituals, and the corporate idiom, NASCAR manages and sustains a structure composed of more than business relationships.

NASCAR as the largest sanctioning body concerned with stock car racing performed functions analogous to the highest officers of traditional fraternities.[391] It presided over the constitution of fraternal life by instituting systems of rules and organizing the location and creation of events. Such rules determine the location and duration of competition, criteria for victory, and most importantly, the configuration of the race technology. Part of NASCAR's role as the sanctioning agency was publishing an annual rule book that described the procedure of racing events, the composition of teams, and the parameters of race vehicle technology, in some detail. The rule book also determined the composition and skill set of the racing fraternity. Because of established precedent, and obvious simplicity, the procedure of racing events conducted over a closed course left little room for interpretation. By requiring a driver and mechanic be registered for each car beginning in 1954, NASCAR did have specific input into the composition of the race teams.[392] By 1964 rules governing details of the pit stop effectively enlarged the team by permitting each team to use seven members to complete a pit stop. Yet these changes, though crucial to the overall evolution of the sport, did not offer the same opportunity to encourage close competition as the rules governing technology.

After assuming the initiative by organizing the sport, NASCAR became responsible for governing the technology and process of competition, and by extension, the material culture and actions of the racing fraternity. This control was largely established through an official Rule Book issued each year. Yet because unspecific rules allow flexibility in interpretation, and NASCAR claimed the responsibility of interpretation,

[391] Clawson, 211.
[392] NASCAR rule book, 1954, ISC Archives, Daytona Beach, Fl

negotiations and adjustments occurred throughout the year. As NASCAR legend Junior Johnson comments,

> when I kept passing [the rule book] up with better ideas, as quick as they'd see what I had and was beating everybody with, they'd either make it illegal, or make it legal and tell everybody what it was, by announcing you can run so-and-so at the next race. You might as well just go having a meeting and say, 'Hey, guys, Junior's got this here, and if you don't got it, you'd better be getting' it.'[393]

Conventions about the legality of technologies were manipulated as necessary. Operating within the gray area surrounding simple rules governing complex technologies, NASCAR evoked the "spirit of competition" caveat to keep racing entertaining.

This gray area can best be described as a set of flexible standards. Though promulgated as a set of standards, the rules were vague enough to permit flexibility in interpretation. Interpretation often decided the legality of a racecar on the day of qualifying. It was always in the best interest of competition, and typically fell under a rule book caveat giving license to NASCAR to make any interpretation deemed necessary in "the spirit of competition."[394] Despite such explicit license being described in the rule book, NASCAR and Bill France still aroused the ire of contestants who stepped too far over conventional boundaries.

Understanding how to build a car to remain competitive but not too far outside the rules required knowledge of the prevailing interpretation of the rules that govern the racing fraternity. For example, for the 1968 Daytona 500, innovative car builder Smokey Yunick showed up with a car sporting an offset frame which, while it maintained the

---

[393] Kim Chapin, *Fast as White Lightning: The Story of Stock Car Racing*, (New York: Three Rivers Press, 1998), p.317.
[394] NASCAR, *1951 Stock Car Competition Rule Book*, (Daytona Beach: NASCAR, 1951), p.5.

engine on center between frame rails as stipulated in the rules, moved weight advantageously to the left side of the car by shifting the whole chassis under the body. Though this car was built within the published rules, it was disqualified because of the tremendous advantage rendered by its unconventional construction.[395] Smokey recalled Bill France's application of the supple "spirit of competition" clause as "Chickenshit."[396] Smokey, a figure known for not following rules, was a victim of his own ambition and ability. By innovating too far outside the conventions of the fraternity, even if within the rules, he came into conflict with the spirit of competition.

As the chassis design converged into a single "formula stock" during the 1960s and 1970s, understanding how rules could be stretched was vital for success. Historically NASCAR seemed willing to allow fraternity members to bend the rules a lot if it suited the immediate needs of managing technology to keep competition close. At the Atlanta race in 1966, Junior Johnson brought out a 1965 Ford Galaxie with radical aerodynamic modifications intended to enhance the performance of the car on the high speed track. With the front sheet metal dipping so low that the lower half of the headlight was obscured behind the front bumper, and the rear sheet bodywork raised to act as a spoiler, the car only vaguely resembled a production Galaxie. Despite such heavy modification, NASCAR permitted the car to race. In this case Bill France himself bent the rules in this manner because Ford had withdrawn from all stock car racing as protest over the prohibition of an overhead cam V8 engine with a lot of horsepower and limited production.[397] Dubbed the "yellow banana" by sports writers, the car was allowed to compete because NASCAR wanted the car to place well and hopefully lure Ford back into direct support of stock car racing. As Bill France commented, I admit the rules were bent in Atlanta . . . it sort of opened up the door for any of the other Ford drivers to return

---

[396] Smokey Yunick interview, Speed and Spirit: by Ben Shackleford, Fall 2000.
[397] Leo Levine, *Ford: The Dust and The Glory*, (New York: Macmillan, 1968), p.549

to racing."[398] Over the long term, NASCAR recognized the benefits of having multiple models of cars represented. As Chrysler dominated Grand National competition with Ford on the sidelines, and GM corporate headquarters forbid direct division involvement in racing, NASCAR bent the rules to benefit stock car competition in the long run.

Similarly, NASCAR was willing to make certain new developments legal if they served the ultimate end of enhancing competitive spectacle. For example, we have previously discussed how Leonard Wood enlarged the pump of the jack to lift a car in three strokes.[399] Though harder to operate, the high capacity pump of this jack could raise one side of a car with a quarter as many strokes of the handle. During a pit stop, where a crew of seven rushes to change four tires and add 22 gallons of fuel, any time saving appliance offered tremendous advantage. One by one other teams caught on and modified their jacks to lift faster. When NASCAR discovered the innovation, rather than prohibit quick-lift jacks, they made little note of the refinement. NASCAR ruled that the equipment of the pit stop must be approved for safety, but the details of its operation remained a gray area open for innovation.[400] It seems likely that one of the reasons NASCAR permitted such modifications was because this modification was simple and inexpensive. In the long term this stance encouraged more competition during pit stops through further rationalization of equipment and procedure.

Racers from outside the NASCAR fraternity understood that mastering the local knowledge of the NASCAR fraternity was essential. As mechanical engineer, SCCA champion, and Porsche racing development test driver Mark Donohue commented, "NASCAR rules are so vague it's hard to know what to do. It would be foolish to read the

[398] Fielden, vol. 3, p.66.
[399] Leonard Wood, phone interview with the author, Winter 1998.
[400] NASCAR Rule Books, 1962 –1966.

rule book, build a car, and go to the track with a $60,000 mistake."[401] Clearly participating in NASCAR Grand National culture was necessary to understand the crucial details of how a stock car could be built. Command of current local knowledge regarding the details of rule enforcement became ever more crucial as NASCAR Grand National racing departed from the strictly stock format during the late 1950s and early 1960s.

Informally spreading information about the details of rule interpretation meant that membership in the fraternity of racers was crucial to remaining competitive. For NASCAR, informally spreading the subtle technological details among fraternity members decreased the likelihood of revealing just how different their racecars were from genuine production vehicles. For racers, access to the gray area of interpretation and enforcement helped them compete, create spectacle, remain financially viable, and remain an active member of the tacit fraternity. Frequent negotiation of technological parameters already confused by annual model changes and myriad optional equipment demanded an organizational structure that was at once flexible and strong. The logic of this organizational scheme appealed to the pragmatic business interests of competitors while satisfying the requirements for technology and competition as entertainment.

Additionally, reactive application of the "spirit of competition" was inexpensive. Racers had to break a rule and suffer censure or disqualification before they knew what might be legal. Alternatively, they could ask NASCAR if their plans would be accepted and risk having a competitive advantage publicized. Either way, NASCAR incurred little expense and created little confusion trying to maintain inspections to exacting standards. Instead, notoriously vague rules describing the technical details of racing equipment demanded constant negotiation between racers and NASCAR officials.

---

[401] Mark Donohue, *The Unfair Advantage*, (NewYork: Dodd, Mead & Company) 1975, p.226

NASCAR created a system of rules and enforcement that kept stock car racing, and the informal fraternity of stock car racers focused on commercial goals. As Robert J. Thomas writes,

> The technical system of an organization can be at one and the same time objective - that is reflexive of a logic, a set of rules and conditions independent of the social system - and infused with objectives - that is, reflective of the interests or goals of particular groups within the social system. Technology can appear as determinant when its objective features become indistinguishable from those who occupy a position of dominance.[402]

The technical format dictated by NASCAR and rendered by stock car racers was such a circumstance; technology carried the agenda of a smaller group into a public sphere. Dominated by enthusiasm for the car but also informed by the demands of fraternal membership, the group most often the public face of NASCAR was the heroic drivers.

During the mid 1950s NASCAR racing began to develop a cadre of superstars. Millionaire lumberman Curtis Turner, master of the dirt bullring; jokester and ex-motorcycle champion Joe Weatherly; Glen “Fireball” Roberts, a model of studied consistency; and the businesslike Lee Petty were the most prominent emerging stars of NASCAR racing. Their dramatic exploits on the track helped NASCAR stock car racing attract the attention of more mainstream media. During the late 1950s and early 1960s, a new group of prominent racers augmented these stars. Men such as “gentleman” Ned Jarrett, ex-moonshiner and perennial underdog Junior Johnson, “Fast Freddie” Lorenzen, and second generation champion Richard “The King” Petty were the premier racers as NASCAR emerged from obscurity onto the pages of print media. These consistent winners, with interesting personalities and media-dubbed epithets, began to

---

[402] Robert J. Thomas, *What Machines Can’t Do: Politics and Technology in the Industrial Enterprise*, (Berkeley, CA: University of California Press, 1994) p.19.

develop superstar status as promotional print and numerous racing performances kept them in the public eye. The dramatic performances and occasional tragic death of racing superstars elevated the seriousness of the challenges and achievements possible in the racing world.

Premier among the early superstars was Glen "Fireball" Roberts of Apopka Florida. An intelligent and engaging demeanor, matched with a careful driving style, catchy nickname, and considerable success on superspeedways, combined to create widespread celebrity.[403] Fireball was one of the first drivers from the NASCAR ranks to land driving jobs outside stock car racing, driving for the Shelby American road racing team in 1963. He also explored new terrain using his celebrity as a driver. In the months before his death, Fireball landed a major contract as spokesperson for Carling Breweries.[404] Always conscious of public scrutiny and how that might reflect on his career as a driver, Roberts seemed to understand the marketing potential his racing success could offer earlier than most racers. In one story, "Fireball" shook off insults from a drunken race fan explaining that "I can't fight the guy or it will be all over the papers tomorrow."[405] Like some other drivers such as Ned Jarrett, who took Dale Carnegie public speaking courses as a young driver, Roberts grasped the possibilities of exploiting his status as a promotional tool well enough to cultivate a polished public image.

Fireball Robert's death from burns sustained at Charlotte Motor Speedway in May of the 1964 season, closely following Joe Weatherly's death at Riverside raceway in January, sharpened understanding of the real danger associated with competition. Yet the publicity these tragedies prompted only heightened the celebrity of those who

---

[403] Fireball was given his nickname when pitching for the Zellwood Mud Hens an American Legion baseball team headquartered just north of Apopka.
[404] Interview with Judy Judge, fiance of Glen ''Fireball'' Robert at the time of his death
[405] Ibid.

persevered amid such danger. This seriousness of competition, and the magnitude of spectacles carried out at high speeds on superspeedways, nourished a cult of personality that carried the sport farther from a contest between machines, toward a confrontation of individual personalities. Though fan loyalty to the competitive dimension pitting auto makers against each other persisted, the rising prominence of individual drivers steadily increased in significance.[406] The subtle transition of emphasis from the "car and driver" to the "driver with car" was critical to selling the sport during the 1970s, when the technology of competition moved toward uniformity among makes and parity on the track.

A 1965 Ford-sponsored marketing study picked up on the trend. "Who Gets Credit for Victory?" the report asked rhetorically. To which the report answered, "The biggest group – about 40% - consider a race to be a contest among men with courage and skill. This group develops strong ties with drivers and expresses sentiments bordering on hero worship."[407] The attraction of these racers was profound because fans could identify with them. Stock car racers embodied the ideals of action and daring attractive to working class whites privileged by race but constrained by class. This vicarious association was strengthened by the similarity of the racecars to street cars. The potential sales implications of such easy association between mass-produced consumer goods and the specialized cars on the track was not lost on those conducting Ford's marketing survey. "There is very easy identification of the car which races with the car one sees driving in everyday life," the study commented. "Every fan can see in the car on the track his own automobile."[408] Jerry Bledsoe describes the power of this identification for young working class men. "You could be poor and uneducated and

[406] "Exploratory Research On Motivations and Characteristics Of Stock Car Racing Fans" (65/F-32-S)Ford Motor Company Archives, Motorsports Collection, Dearborn Michigan.
[407] Ibid.
[408] Ibid.

scorned by society," he writes, "but if you could learn to pick a guitar or drive a car, you just might luck out and find that glory, that pot of gold at Darlington or Nashville."[409] As one historian has commented, "Racing has become an accepted way (along with others, including singing and athletics) for a rural white man to achieve fame, money, and the trappings of success. . . They are folk heroes with whom the average southern male can identify."[410] Through hard work, exclusivity, and bravery in competition thee NASCAR fraternity created archetypical heroes. Enthusiasm for the exploits of these highly visible members of the racing fraternity drove the sport to new levels of popularity.

[409] Bledsoe, p.34.
[410] David M. Johnson "Stock Car Racing," *Encyclopedia of Southern Culture*, (Chapel Hill: University of North Carolina Press, 1989), p.1241.

CHAPTER 6

SUPERSPEEDWAYS AND NATIONAL EMERGENCE

Stock car racing's contribution to the art of track design has become the Superspeedway. It combined all the modern benefits of a paved, banked racetrack with monumental scale. In addition to being clean and predictable, the drama of superspeedway racing offered more than simply automobile racing entertainment to fans. The speeds made possible by the size of the track and the inclination of its turns ensured that a popular allegory of technological progress could be played out by stock car racers. Manufacturers claimed more horsepower each year, tire manufacturers worked to steadily improve the capacity and longevity of race tires, tracks advertised steadily increasing speeds in competition, and constantly narrowing comparisons between "stock" cars on the track and purpose built racecars assured fans that American technological expertise could deliver it all.

The powerful symbolic value of the superspeedway had a dramatic influence on the development of NASCAR stock car racing. The popular appeal of high speeds made possible by asphalt banking challenged more established notions of racing built on conventions and expectations relevant to dirt tracks. Though the years between 1946 and 1969 would see most forms of big league American oval track racing take to asphalt, the shift was most dramatic among stock car racers.

The high-banked, asphalt superspeedway offered the catalyst that finally separated stock car racing from its dirt track roots and brought respectability to the sport. In addition to reshaping racing techniques and equipment used in competition, the superspeedways at Darlington, Daytona Charlotte and Atlanta influenced the regional impact of stock car racing. For years before the influence of the superspeedway, even the nicest dirt tracks were filthy places. Muddy when wet and dusty when dry, the

physical filth seemed emblematic of regressive behavior thought to accompany each racing event.[411] To build an exciting, and permanent entertainment series, NASCAR needed respectable venues in addition to evenly matched, late model racecars. Asphalt offered respectability on par with other forms of motor sport, the scale of the superspeedways suggested that NASCAR stock car racing was something bigger still. These large, high banked tracks foreshadowed national prominence and respectability for stock car racing. As they raised the profile of an emerging sports entertainment series, events at these superspeedways helped legitimize a sport during a time when the South, particularly working class southern whites, yearned for legitimacy.

Though the superspeedway gained fame as a racing venue suited to NASCAR stock car racing, it was not a southern invention. The prototypical asphalt superspeedway was built in Oakland, California in 1946. It possessed features that came to define this genre of racing oval: a big, smooth track with high banked curves on opposite ends of long straightaways, claimed by builders to have been influenced by scientific principles for speed-sustaining design. Described as "The pattern for tomorrow's speedways," the "scientifically perfect track" at Oakland was an asphalt oval featuring thirty-four foot high banked corners.[412] Though styled after the high speed, high banked board track velodromes and speedways of the teens and twenties, the new track in Oakland was built of graded earthen berm and asphalt to withstand frequent use and heavy production-based racecars. This design deviated considerably from the relatively flat oval dirt tracks that dominated the sport during the 1930s and foreshadowed the departure from the dirt tracks that had come to define American automobile racing.

---

[411] Pete Daniel, *Lost Revolutions: The South In the 1950s*, (Chapel Hill: University of North Carolina Press, 2000), p.117, Smokey Yunick, *Best Damn Garage In Town: The World According to Smokey*, (Daytona Beach: Carbon Press, 2001) p.26
[412] "Oakland's Speed Palace," *Speed Age*, August, 1948, p.18

The innovative size, shape and surface were not the only novel elements introduced by the new track in Oakland. This track hosted the evolution of a new racing style more suited to high speeds possible on steep asphalt banking. In the inaugural race, a young local driver named Lennie Low pushed his Hudson Hornet around the upper rim of the track in what came to be known as the "high groove."[413] Leaving the more experienced dirt track racers to fight the shorter, tail-loose way around the inside of the oval, Low cruised to a win by employing the high velocities made possible by the shape of the track. This victory not only introduced a new driving style to production-based racing, it also presaged the inevitable success of higher speed asphalt racing over dirt track contests. From the steep banks of Oakland Speedway, the "superspeedways" of NASCAR stock car racing emerged as high speed racing ovals in their most extreme form. Though the days of tail-loose, throttle steering racecars around relatively flat ovals did not end with the rise of the superspeedway, the speeds of contests held on dirt soon paled in significance to the velocities possible on pavement.

During the early years, NASCAR was involved in a cooperative marketing arrangement with *Speed Age*, the earliest magazine devoted entirely to auto racing. Beginning in 1948, *Speed Age* advertised in the biweekly *NASCAR News*, a tri-fold bulletin sent to NASCAR members. In exchange, *Speed Age* magazine carried advertisements promoting fan membership in NASCAR and offered subscription discounts to all NASCAR members.[414] Subsequent wide circulation of *Speed Age* among early NASCAR members likely spread details of the design of the banked asphalt track in Oakland to members of the fledgling racing community. It seems likely that a venue such as the new track at Oakland inspired a South Carolina heavy equipment dealer named Harold Brasington to build a huge paved stock car track in the rural uplands of

[413] Ibid.
[414] Ibid.

eastern South Carolina. In early 1950, along with a group of investors, he began building a track near Darlington. That track hosted its first NASCAR Grand National race later the same year.

Though the era of asphalt banking and stock cars technically began in California, and Indianapolis, Indiana claimed the most famous speedway in the world, a homespun track in the hinterlands of South Carolina would ultimately be known as the original superspeedway. Though nearly a decade passed between the opening of NASCAR's first big paved oval and adoption of the epithet "superspeedway" by fans, sportswriters and promoters, the Darlington Motor Speedway defined the sort of scale and permitted the sorts of speeds that stock car racing needed to gain widespread acclaim and eventual acceptance. The design of the track facilitated speeds fast enough and drew the crowds large enough to permit comparison to established forms of motor sport, suggesting that NASCAR Grand National stock car racing was a credible enterprise. Less than three years after the meeting at the Streamline Bill France had the recipe for bringing stock car racing into its own as a legitimate form of motor sport.

From the beginning, folks who followed stock car racing knew the new paved track at Darlington was something special.[415] Big enough to seat the entire population of Darlington, in a era where few tracks on the circuit were over half a mile in length, and none were paved, the 1 1/4 mile oval was a symbol of respectability and progress. Most importantly, the paved track at Darlington offered the scale and facilitated the racing speeds necessary to enhance the legitimacy of production-based racing. Winning on the rough, high-banked track immediately became the pinnacle of success for competitors and sponsors on the budding NASCAR Grand National Circuit.

---

[415] No track has ever officially been known as a "superspeedway." This epithet was retroactively applied to the Darlington Speedway, after it was actively applied to Daytona International Speedway. The following year, the term was attached to the two other large tracks in the NASCAR circuit, Charlotte Motor Speedway and Atlanta International Raceway.

Similarities intended to associate the new racetrack at Darlington with the premier American race event in Indianapolis also brought notoriety to the stock car racing. Clearly the size of the venue, the high speeds possible with stock cars on a banked oval, and the five hundred mile length of the event combined to equate running production-based vehicles with long-established forms of racing elsewhere. One account describes Brasington's motivation for building Darlington. "If Indianapolis was the Mecca of speed, he reasoned, he would accept that fact. But there was no reason for Indianapolis to be the only place of worship. There could be other denominations . . . and other Temples."[416] For the emergent sport, the similarities between the Southern 500 and the Indy 500 offered credibility within American motor sport. The size of the venue and the high speeds possible demonstrated the legitimacy of NASCAR stock car racing to a nation fascinated with speed and scale.

At the opening race in September 1950, many features of the track at Darlington signaled that stock car racing was out for respectability. Among these clues was the immediate association with the larger race in Indianapolis brought by the title "Southern 500." As NASCAR developed a regular series of races during the 1950s, the number 500 was regularly evoked to provide association with the biggest single-day sporting event in the world, the Indianapolis 500. Even when races had 500 laps rather than 500 miles of competition, they were often tagged with the 500 epithet. For example, the "Virgina 500" and the "Western North Carolina 500" were each only 250 miles long, five hundred laps on a half mile course.[417] It was no coincidence that the big stock car race held in Darlington each year was named, out of deference to the Indianapolis 500, the Southern 500.

---

[416] Joe Stewart, "America's Newest and Dixieland's Pride," *Speed Age*, September 1950, p.32-33

[417] Greg Fielden, *Forty Years of Stock Car Racing*, (Surfside Beach, SC: The Galfield Press), Vol. 1, p.226.

As the first paved course used by NASCAR the facility also offered other, more tangible elements of prestige. *Speed Age* columnist Joe Stewart described Darlington in an article titled, "America's Newest and Dixieland's Pride," commenting that "Almost overnight the Southland had become major league in something other than college football."[418] The concrete and steel grandstands were a departure from the rustic accumulation of timber grandstands and earthen berm common to most southern tracks. In addition to being larger and more sturdy, they permitted a view of the entire track. Stewart effused, "rest rooms and refreshment stands were located every 150 feet while the infield offered accommodations for both white and colored patrons." Although this Southern concept of modernity maintained segregation, the aspiration was to create a motor sport venue on par with the great tracks of the country. By the standards of the day, particularly in the South, the facility was impressive.

Stewart's telling allusion to the popularity of college football suggests that the South had little else in the way of sports entertainment. While Southern college graduates could easily find sports allegiances, an increasingly mobile southern working class had few options for mass entertainment in a region all but devoid of conventional professional sports like baseball and football. Even Atlanta, the largest city in the New South, did not have any major league "stick and ball" sports franchises until 1966.[419] As the working class South adopted stock car racing as a pastime, paved speedways added prestige and credibility to the sport.

The one-and-a-quarter mile long track at Darlington afforded extra space within the oval to accommodate paying fans in addition to racers and their equipment. Though spectator accommodations were often not as good as those in the grandstand, the

[418] Stewart, p.33.
[419] The Falcons and Braves moved to Atlanta in 1966.

infield became a notorious playground for working class fans.[420] This was due in part to the numbers of traveling fans unable to find or afford suitable lodging who camped prior to the race. In addition, the practical and symbolic isolation offered by the infield encouraged an atmosphere of transgression. The fenced infeld area surrounded by an asphalt track busy with speeding cars provided an atmosphere conducive to liberal consumption of alcohol and experimentation with other vices. Drunken debauchery in the infield of NASCAR events, and at Darlington in particular, soon achieved legendary status as the best place for rebellious common folk to revel with impunity in plain sight of the larger community. NASCAR lore is filled with tales of mobile whorehouses operated out of hearses, nude motorcyclists, salesmen pedaling moonshine as "cold tonic," and scads of passed out fans on Darlington's infield.[421]

As eventual NASCAR Champion Ned Jarrett recalls, "A friend of mine and I decided we wanted to go to Darlington and just see, we'd heard so much about the things that went on in the infield on the night before the Southern 500 at Darlington. So we went there and spent the night, basically slept in our car. But it was, it was interesting to say the least. You could see just about anything then there that you might be looking for and some that you weren't. There was a lot of drinking going on, a lot of sexual maneuvers and activities going on out in the open, they didn't seem to mind who was watching or what was going on around them." Clearly, safely inside the infield of a superspeedway, protected by a moat of racing cars, working class fans found relaxation and release with uninhibited vigor.

Jarrett was not alone in his appraisal of the infield of Darlington. As Jerry Bledsoe writes, each year the infield of Darlington speedway "would be transformed into a gypsy city of more than thirty-five thousand people and thousands of vehicles. This happened

---

[420] Jerry Bledsoe, *The Worlds Number One, Flat-out, All-Time Great, Stock Car Racing Book*, (Asheboro, NC: Down Home Press, 1975), p. 30-37.
[421] Yunick, p.38.

at other tracks, but at Darlington it was a tradition dating from the early days when thousands of people would arrive a day early for the race. There being no place to house them in the small town, the track had allowed then to camp in the infield. It had evolved into an annual party, the biggest, wildest, whoopingest, holleringest, drinkingest, gamblingest, carousingest, knock-down, fall-out blowout in the South. A lot of people came to Darlington more for the infield party than for the race, as was evident on race day, when they would be stretched out somewhere sleeping as the cars roared around the track."[422] Even if cars were not the lure, the size and scope of events at Darlington were a popular prototype for the infield of superspeedway events. Though it seems unlikely that reality matched the scale and scope of transgression passed through legend, like the dimensions of the venues, the unfettered festive atmosphere at superspeedways was a crucial component of their mystique.

If NASCAR gained status among traditional race fans through pavement and concrete grandstands, so too did it benefit from the reputation built by the rowdier fans. Conveniently, such a vast track and large event offered plenty of space for the ambiguity of respectability and revelry to coincide. The track at Darlington, like the term superspeedway, could accommodate multiple meanings for groups with different interests. If for the production-based racing community Darlington was a big fast event, and for blue-collar or redneck fan, Darlington meant a big drunken party, so be it. As long as neither group was prevented from fulfilling its expectation, they both got what they wanted: something big in the South.

As for racing entertainment, Darlington was immediately considered far and away superior to the regular dirt tracks of the day. To begin with it was much cleaner to run a race on asphalt. Fans could enjoy a race without the choking dust storm or nasty slinging mud that accompanied races on dirt. The substantial concrete grandstands and

[422] Bledsoe, p.36.

high banking also permitted a view of the racing action around the entire track. Apart from the level and quantity of entertainment the new facility offered, as Joe Stewart suggested in his article, the size of the edifice, and choice of construction materials suggested permanence, stability and respectability.

Though the Southern 500 was easier on the promoters and fans, it was much harder on the racers and their cars. Built with bulldozer in hand and the idea of super speeds in mind, the speedway's design was, at best, unrefined. Though approximately well conceived for high speed competition, the track wore out production-based equipment at an alarming rate. Rough transitions connecting the straights and the turns pounded the stock suspensions on cars more accustomed to the relatively cushioned forgiveness of smaller dirt ovals. The differing corner radiuses of the egg-shaped oval race track, and the uneven sixteen degree asphalt banking, offered other new challenges for drivers and equipment. High temperatures generated by five hundred miles of "flat out" racing on the banks of the asphalt crucible melted engines, while the high speed turns quickly scrubbed the useful life out of tires. Only 28 cars out of a starting field of 75 completed the inaugural five hundred mile race. The winner, champ car racer Johnny Mantz, managed victory on truck tires at the car-saving pace of just over 75 miles an hour.[423] Notwithstanding such mechanical calamities, and the financial burden remaining after, the inaugural race was considered a huge success.

The inaugural Southern 500 demonstrated the ability of stock car racing to amuse larger audiences than normally occurred at the local dirt track events that comprised most of the Grand National schedule. Located off US Highway 1 near Florence, the Darlington raceway was able to draw fans from Columbia, South Carolina, the Carolina coast, Charlotte North, Carolina; and as far as Augusta, Georgia, 120 miles

[423] Fielden, vol.1, p.33, Champ car racing was the series that fed purpose built cars into the Indy 500.

distant. This accessible location and diligent promotion brought an estimated 30,000 fans to the first race.[424]

Despite such apparent success, developing immediate popularity among fans and the motor sport press proved expensive. In addition to being more popular than planned, Darlington was also more costly than anticipated. An expense of over two hundred thousand dollars in building the racetrack so overextended Brasington's financial resources that he was forced to sell his share of the enterprise to his partner. Despite the expense, the track at Darlington fulfilled the premise of "build it and they will come."

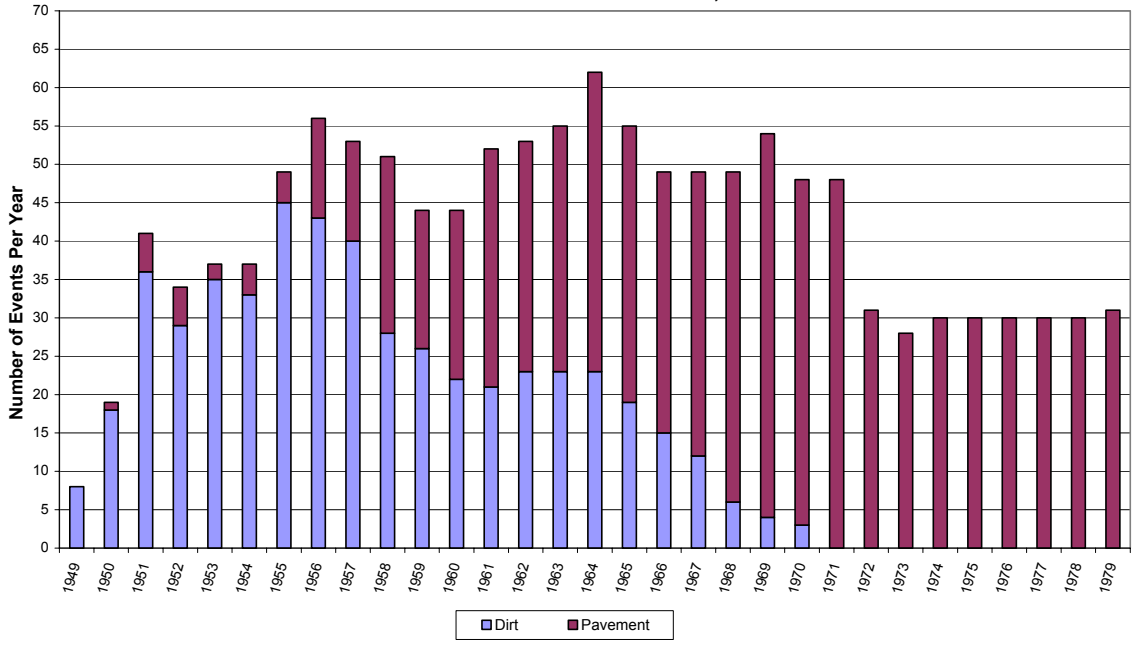
Such was the potential of Darlington that after the first year the track was expanded to 1 3/8 miles with revised steeper banking to promote higher speeds and fewer tire blowouts. The grandstands were also expanded to accommodate 40,000 seated patrons. Despite such improvements, the facility was hardly capable of containing eager fans. Spectacle on the scale of the Southern 500 at Darlington brought so many fans from across the South, that in 1955, the crush of an estimated 50,000 spectators flattened fences and prompted the collapse of a pedestrian footbridge leading to the infield. Undeterred, he following year an estimated 70,000 fans showed up for the "500 miler"[425]

Despite its success, Darlington was an outlier in the development of speedways for NASCAR Grand National competition. It was nine years before a second big track appeared on the NASCAR circuit, at Daytona. While the scale of Darlington could not easily be mimicked, many existing tracks adopted paved surfaces. During the fifteen years after the inaugural Southern 500, the high speeds of asphalt racing eclipsed the traditional dirt tracks throughout the sport of stock car racing. By 1965, clean, modern

[424] Fielden, vol.1, p.33
[425] Fielden, vol.1, p.244

asphalt tracks, either built from scratch or over existing dirt ovals, began to represent a substantial part of the schedule. (See Table 5) The apparent chaos and billowing filth of a dirt track was out of place in the era of the automotive tail fin. During the 1950s, fans committed to cold war notions of the progress and prowess American technology were clearly drawn to fantastic performances on a grand scale. The cleanliness and order of paved tracks suggested control over the natural world. Asphalt drained and dried in ways that dirt tracks could not. It did not turn to mud or dust, and did not become pock-marked with holes, or grooved with ruts during racing. Paved tracks were predictable, stable, more sanitary, and modern.

Table 5: The Transition to Paved Racetracks, 1949 - 1979



Data Extracted From: Greg Fielden, *Forty Years of Stock Car Racing*, (Surfside, SC: Galfield Press, 1992), Vol. 1-4.

For an aspiring young stock car racer named Bobby Allison, racing on a paved tracks was important for his career. While recalling a conversation with two other racers about leaving Florida in search of the prestige of paved tracks he comments that,

> I wanted to run pavement too. I thought that pavement was the steppingstone to the big speedways… So they said that 'We've been up through Georgia for two weeks. We're going back. We heard there's good paved tracks in Alabama.' I said, 'I got this $95. I'll go with you.' They said, 'Fine, let's go. We'll leave in the morning and drive up through Central Florida and go into Alabama and we'll find the race tracks.' Had no idea where to even start looking but we knew that Alabama was right next to Georgia.[426]

It seems likely that two additional factors informed the timing of pavement on tracks used by NASCAR. First, most racetrack owners forestalled paving their tracks until they were certain that NASCAR was an established fact. It seems no coincidence then, that few tracks besides Darlington were paved until the middle of the 1950s. Second, after the 1957 AMA ban on racing, stock car events became heavily concentrated in the Southern Piedmont. This suggests that tracks could count on enough stock car races to justify the expense of pavement. Though it did provide a more stable surface for competition, and thus assured more predictable race presentation, asphalt ovals no doubt also represented a significant expense for smaller track owners.

With the growth experienced by stock car racing during its first decade, venue grew in importance. As stock car racing prospered throughout the 1950s, NASCAR president Bill France began to express the need for a race track in keeping with NASCAR's growing stature. In 1950, the beach race in Daytona, an event sanctioned and promoted by NASCAR and Bill France, attracted 9,500 fans. Later that year, the first

[426] Bobby Allison interview, "Speed and Spirit: NASCAR in America," Spring, 2001, Smithsonian Institution Transportation Collection, Washington, DC.

race on the pavement at Darlington attracted a crowd more than three times that size.[427] For Bill France, not being able to gather fees from all the fans was bad business. Legend has it that so many of the attending fans attending the race on the sands of Daytona Beach did not pay admission, that the following year France had "Beware of Snakes" signs planted among the dunes to encourage turnstile usage.[428] Having your premier race set on Daytona Beach, the so-called "birthplace of speed," upstaged by an event in the backwoods of South Carolina was bad publicity. Clearly, the sport was capable of attracting large crowds, and NASCAR was missing out on the profits and notoriety possible with a larger, modern venue. As early as 1954, France announced his ambition to build a new Daytona Speedway to host sanctioned races and speed trials the following year. A series of delays related to gathering the consent of the citizens of Daytona, developing a design for the track, and gathering a large enough pile of money necessary to fund such a venture moved the opening of the Daytona International Speedway from the middle to then end of the decade.[429]

In December 1957, clearing began on a 446-acre site off US 92 just west of Daytona. At the ground-breaking ceremony the following February, construction began in earnest as the first of over 800,000 cubic yards of earth was moved. The banked 2.5 mile track was designed by Daytona city engineer C.H. Moneypenny, who drew upon research conducted by Ford and GM while designing their high speed test tracks in Michigan and Arizona. The theme of top speed dominated the thinking about the new track. Design information provided by manufacturers helped Moneypenny reproduce the crucial spiral transitions connecting the curves to the straightaways used on industry test tracks. He commented, "the problem of matching the entrances [between straightaway

[427] Fielden, Vol.1, p.33
[428] Fielden, Vol. 2, p.11.
[429] "The Scientific Speedway," *1959 Daytona 500 Program*, ISC/NASCAR archives, Daytona Beach, Florida.

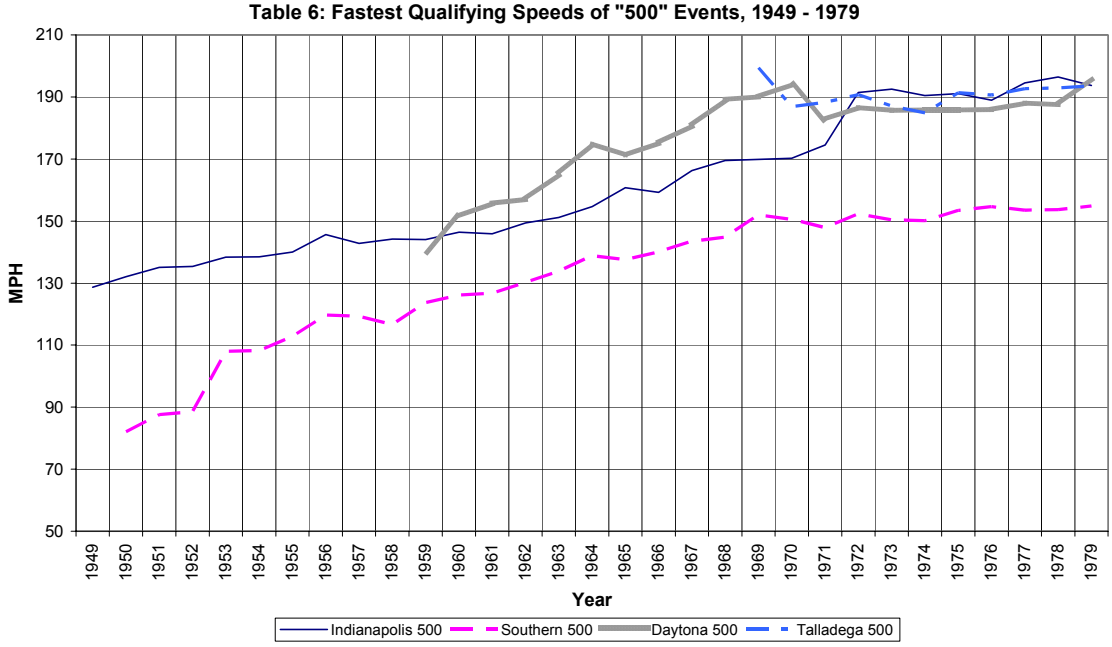
and turns] and the turns so that a car can speed around the track continuously at top speed might appear simple. It wasn't. Developing the basic formulas occupied the best brains of the auto industry for decades."[430] Though Moneypenny's assessment of how much effort Detroit devoted to test track development may be hyperbole, it remains clear that the 31 degree banks of the Daytona Speedway were intended to support production-based racing at hitherto unimagined velocities.

That such incredible speeds were possible using track designs intended for test tracks served the promotional emphasis of stock car racing very well. Because of the high banking and careful attention to the transitions between straight and curve, Daytona and later speedways permitted stock cars to achieve speeds on par with the purpose built racecars racing in Indianapolis. (See Table 6) Even with the first races on a superspeedway, the velocity of racing action compared favorably with the premier motor sport event in the United States. The winner of the first Daytona 500 in February of 1959 averaged 135.52 miles an hour, while the winner of the Indianapolis 500 later that year bettered that speed only by a narrow margin averaging 135.85 miles an hour.[431] As stock car racing expanded its audience, the promotional aspect of racing production cars blossomed. Simple comparison between the top speed of the stockers and the top speed of the vaunted Indy speedsters suggested that American production cars, like the men who raced them, were quite exceptional. For the purposes of NASCAR and participating automobile manufacturers, such comparisons rendered valuable publicity.

---

[430] Ibid.
[431] Fielden, Vol. 2, p.18, Brock Yates, *The Indianapolis 500*, (NewYork: Harper and Row, 1961), p.175.

Table 6: Fastest Qualifying Speeds of "500" Events, 1949 - 1979



Data Extracted From: Greg Fielden, *Forty Years of Stock Car Racing*, (Surfside, SC: Galfield Press, 1992), Vol.1-4 and www.indy500.com.stats.summaries.php

Clearly, a good part of the speeds possible with production-based cars depended on the special speedways on which they raced. After the only race on the Daytona International Speedway using purpose-built Indianapolis-style racecars, the speeds they achieved prohibited their return. Their premier on the high banks of Daytona had resulted in several serious wrecks and one fatality.[432] The Indy cars topped 176 miles an hour on the high-banked facility, a speed far in excess of the capacity their tires. Despite this clear demonstration that much of the stocker's speed was due to the radical track, the temptation to compare the Daytona 500 with the Indianapolis 500, the biggest race of them all, remained overwhelming for NASCAR enthusiasts.

In addition to promoting very high speeds, the design of the Daytona International Speedway also incorporated a twist that lent increased profitability. Though

[432] Fielden, Vol. 2, p.214.

some tracks like the circular speedway at Langhorn Pennsylvania and the roughly rectangular Indianapolis Motor Speedway defied convention, most tracks throughout the United States were built as ovals.[433] This popular configuration had parallel straightaways as the flat, straight stretches of raceway connecting two, sometimes banked, semi-circular turns to form an oval. The start/finish lines and the "pits" (where cars received tires and fuel) were typically located on the inside of the front straightaway. Opposite pit road on the outside of the oval, the area where cars were refueled and given new tires during a race, the main grandstands were typically arranged parallel to the main straightaway. Because of the action of pit road, and the obvious significance of the start/finish line, the main grandstands were considered prime seating. In order to maximize this top-dollar seating, Moneypenny designed the Daytona track with a slightly curved, and thus longer, front straightaway. To promote continuous high speed racing, the front straightaway of this novel "tri-oval" shape incorporated a long arc and 18 degree banking. That the "tri-oval" design maintained the possibility of high speeds while offering increased seating was crucial during an era when racing profits were based more on attendance than on revenues from television broadcasts. The new venue, touted as "the world's first completely scientific track" but clearly conceived as a financial resource of tremendous potential, would bring more speed, more credibility and more fans to stock car racing than ever before.

Following the creation of the "superspeedway" in Daytona, other tracks greater than a mile in length with high speed banking began to spring up throughout the South. Indeed, even before another venue could be constructed, the "superspeedway" moniker was retroactively applied to the Darlington International Motor Speedway. In an effort to capture some of the growing prestige and economic benefit of NASCAR, new, big, tri-

[433] Langhorn was a virtually circular, flat, dirt one-mile track. The Indianapolis Motor Speedway was also not a true oval. It was more rectangular with four turns connected by two long, and two quite short "straightaways."

oval tracks were begun outside both Atlanta and Charlotte in 1959. For much of the next decade, these four tracks would define the pinnacle of success for NASCAR racing. They would also help establish the NASCAR Grand National series as a legitimate form of racing.

With large, mile-plus long paved tracks in Darlington, Daytona, Charlotte and Atlanta, each hosting two major events a year, NASCAR stock car racing aspired to new levels of respectability. Not until the close of the sixties, with the debut of Michigan International Speedway and the Alabama International Motor Speedway in Talladega in 1969, would there by any new venues approaching the scale of these four big superspeedways. During the first nine years of the 1960s these tracks helped establish stock car racing during the crucial decade of automotive enthusiasm. After all, the 1960s saw the emergence of the American "Muscle Car," international dominance of motor sport by Ford with the "Total Performance" campaign, and the emergence of the Superspeedway. Upon the completion of the Atlanta International Raceway, reporter Jim Minter wrote, "Automobile racing, of course, is nothing new to our section. It's been an established sport for spectators and participants for a long time, but the layout at Atlanta International Raceway has given it a kind of class and bigness that it has never enjoyed before."[434] The glowing rhetoric describing the new Charlotte Motor Speedway echoed promises made for Atlanta's new track. In a letter to fans printed in the inaugural race program, popular driver and president of the new speedway Curtis Turner wrote, "each of the races we plan at Charlotte Motor Speedway will be a "major league" race, the kind you like to see and the kind I like to drive."[435] By offering speed and scale equivalent to

[434] "Atlanta Speedway," *1961 Dixie 300 Program*, International Motorsports Hall Of Fame archives, Talladega, AL.
[435] Curtis Turner, "A Letter to the Fans," *1960 World 600 program*, International Motorsports Hall Of Fame archives, Talladega, AL.

races with purpose built racecars, the concept of superspeedway defined an effort to build respectability and credibility for the emerging South.

But the dominating significance of these four large venues during the decade of the 1960s did more than add respectability through imposing scale. Events made popular at Daytona, Darlington, Atlanta, and Charlotte helped propel NASCAR into the general conscience of motoring enthusiasts across the nation and develop a sold core of devoted fans throughout the region. *Atlanta Journal* sports writer Furman Bisher understood the significance of the new tracks for Atlanta and for NASCAR. For the Sunday sports page on the day of the inaugural race in Atlanta, he wrote, "The impact of Atlanta International Raceway on automobile racing in the South is of some significance. It is the fourth spoke in a wheel of new tracks that offers racecar drivers and owners of the stock car class, which is NASCAR, a grand opportunity for a circuit of activity almost complete within itself."[436] Bisher understood the importance of developing an annual season of events, the sort of things traditions and statistics could be built on. In a world of stick and ball sports, where schedules and statistics were a hobby unto themselves, the temporal and intellectual edifice possible with a regular circuit of activity was crucial to legitimacy. He continued stating that, "Darlington Speedway, created out of cotton and peanut fields in South Carolina, has been in action for several years. Daytona Beach International Speedway, built by Bill France and friendly money-lenders, enjoys the prosperity of its second year. A new one and one-half mile speedway opened north of Charlotte, N.C., last month. Each offers two major racing events a year, plus lesser activity designed to increase the pocket change of driver, owner, and the track investors."[437]

---

[436] Furman Bisher, "New Horizon, Minus Dust," *The Atlanta Journal*, Sunday, July 31, 1960.
[437] Ibid.

Despite such prescience and enthusiasm, Bisher and his colleagues paid little further attention to the track or NASCAR. Indeed, though important to NASCAR stock car racing, judging from the attention granted the new racetrack in the paper and the difficulties surrounding its creation, it is clear that Atlanta International Raceway was not very important to Atlantans. Though the initial race at the Atlanta International Raceway (AIR) on July 31, 1960 received several columns worth of attention in the sports sections of both the Atlanta Journal and the Atlanta Constitution, the following event held in mid-October, got less ink than sport fishing.[438] In following years, event coverage for AIR was limited to short articles published just before and just after each event.

That most Atlantans with money were indifferent the construction of Atlanta's Speedway can be divined by the indifference of investors during its construction. Though undercapitalization of bigger, private building projects was not uncommon in the cold war South, it is difficult to explain how the largest, wealthiest city in the region could not gather enough funds to outdo Daytona or Darlington. Such indifference may be due to the presence of two established, albeit much smaller tracks in Atlanta. Since 1949, the quarter-mile "Peach Bowl" and since the 1920s, the half mile dirt oval at the Lakewood fairgrounds had been providing racing entertainment.[439] But these ventures were of a much smaller order of magnitude than the big track planned south of town and would offer little competition to a track the size of the new venue planned in Hampton, just south of town.

Most likely, the unconventional nature of the racing promotion business and a deep-seated belief that respectable people didn't racecars kept racing entrepreneurs separated from much of the local capital. Sports page editorials, event coverage, and the civic adoption of professional baseball and football teams before mid-decade make it

[438] Ibid.
[439] Greg Farve, *Motor Life*, "The Atlanta Story," September, 1961, p. 58.

clear that Atlantans were more interested in the sort of traditional sports franchises active in larger metropolitan centers up east and out west. The aspirations of Atlanta's sports fans and sport-minded investors seemed fixed on comparisons with other established urban centers outside the South. Despite obstacles such as a lack of enthusiasm at the city's core and a dearth of capital, and numerous struggles for control over the emergent track, the lucrative vision of bringing big-time stock car racing to Atlanta prevailed.

Impressive size, banked turns and the epithet superspeedway were not the only things the tracks at Daytona, Charlotte and Atlanta held in common. Difficulties funding construction, and battles for eventual control of the tracks were common to such ventures. Though NASCAR president Bill France was never faced with serious challenges to control over the Daytona International Speedway, finding enough cash to build the huge track was a problem that delayed construction. After three long years of trying to raise the funds from private sources, the Daytona International Speedway required a local bond referendum.[440] Even such public assistance did not end cash flow problems for the new track. At the opening race, the tracks chose Pepsi products to stock concession stands over those of Coca-Cola because Pepsi was willing to extend credit to the new track. The Charlotte Motor Speedway was a struggle both to fund and control. Problems with huge rock outcroppings and poor construction estimates absorbed most of the fortune of millionaire lumberman and racer Curtis Turner. Low on resources, he turned to the Teamsters Union for capital in exchange for a promise to organize NASCAR drivers into a union. After failing to organize NASCAR drivers, Turner lost the capital guaranteed by the Teamsters, and eventually control of his track.[441]

[440] Fielden, Vol. 2, p. 213.
[441] Fielden, Vol. 3, p. 68.

The struggles over capital and control were just as fierce in the case of the Atlanta International Raceway. Announced in 1958 the track in Atlanta initially attracted capital from local businessmen and professionals. T. Walker Jackson, Lloyd Smith, Garland Bagley, Ralph Sceiano and Ike Supporter chipped in to begin selling stock to investors and building the speedway.[442] When funds began to run low long before the conclusion of construction, a new round of investors jumped in. These new investors, Dr. William Gremmel, Bill Boyd, and Jack Black, would assume effective control over the speedway under the presidency of Art Lester. Lester had arranged his stake and presidency such that the day he was fired or quit, the $526,000 mortgage of the track would come due.[443] Such leverage allowed Bagley, Lester, and the other later investors to maintain control over the Atlanta International Raceway Corporation through two proxy fights that accompanied completion of the track. Despite the timely influx of capital during the summer of 1960, then acting president, Lester faced a dire situation only months before the inaugural race. With the track incomplete, management posed promotional pictures on a paved section of track in front of completed grandstands to pre-sell enough tickets to the opening event to pay for the remainder of the paving.[444]

Finally, successful businessman Nelson Weaver arrived from Birmingham, Alabama to settle the costly and disruptive struggles for control of the track. During the September following the first race, Weaver bought heavily into the AIR Corporation and soon became chairman of the board. Shortly after the second race in October 1960, Weaver paid off the mortgage and relieved Lester of his duties as president. Though a lack of records describing the relative merits of each faction prohibits meaningful

[442] "History," Atlanta International Raceway web site
[443] Farve, p. 58
[444] Jimmy Mosteller interview, conducted by the author, Peach Bowl Reunion, January 30, 2000.

comparison, the apparent persistent lack of capital hints that building a superspeedway was more difficult than the original investors might have thought.

Beyond the difficulties in remaining solvent and viable as a business venture, paving the high-banked superspeedways in Daytona, Atlanta and Charlotte offered its own set of technical challenges. In order to avoid a rough surface like that of the track at Darlington, numerous technical solutions had to be contrived. To operate at slow speeds on the steep banking, the heavy grading or paving equipment was held against the banking by cables attached to bulldozers circling the upper rim of the track.[445] Asphalt and gravel were loaded into spreading equipment using cranes operating from the upper rim of the track because dump trucks could not load spreaders as they worked the banked portions of the track. These solutions, like the modification of production technology to build specialized racecars, reflect an ethic of adapting available equipment to original problems common to motor sport. In the case of building tracks, if there were profits to be made, determined businessmen found contractors that could employ homespun solutions to build.

With the completion of the Atlanta International Raceway in July of 1960, the trajectory of the sport was set for the decade of the 1960s. Superspeedway events took on increasing significance as the sport matured into a national phenomenon. Punctuated by races held on holidays like Labor Day ("Southern 500"), Memorial Day ("World 600"), and Independence Day ("Firecracker 400"), and Easter ("Atlanta 500"), these four tracks enjoyed eight yearly events that served as foundation for the NASCAR season. In addition to borrowing significance from holidays, scheduling races during long holiday weekends offered a better opportunity for fans to break away from work to see a big race. That superspeedways were most often built close to interstate artieries suggests

[445] International Motorsports Hall Of Fame, Talladega, Alabama, photos of construction of the superspeedways at Daytona, Talladega, and Atlanta.

that weekend access from across the region was a consideration when scheduling major events just as it was in planning major venues. Automobiles served as both performer and facilitator of stock car racing. As southern highway construction and use expanded during the decades following the Second World War, so too did the fortunes of track owners and NASCAR. Extensive development of the US highways and the Federal interstate system during the 1950's helped end rural isolation and bring fans to NASCAR events.

Over the next ten years, the four "Superspeedways" at Darlington, Daytona, Charlotte and Atlanta would host the largest events, attract the largest crowds, and entice the largest sponsors into stock car racing. The scale of competition first realized in asphalt and concrete at Darlington would, in combination with the momentum lent by the three large tracks completed in 1959 and 1960, come to dominate the sport. As a consequence of the attention brought by the huge tracks, huge crowds, and large race purses, NASCAR grew dramatically during the 1960s.

As mobility increased, more, larger venues could expect full grandstands each week. In light of these developments, it was no surprise that tracks were located, especially after the creation of the Interstate Highway system, to receive maximum benefit from federally subsidized roads. As Wolfe describes in *The Last American Hero*, "Miles and miles of eye-busting pastel cars on the expressway, which roar right up into the hills, going to the stock car races, and baseball—and the state of North Carolina alone used to have forty-four professional baseball teams—baseball is over with in the South. We were all in the middle of a wild new thing, the Southern car world, and heading down the road to see a breed such as sports never saw before."[446] National enthusiasm for the automobile helped build the interstates and highways that brought

[446] Wolfe, Tom, "The Last American Hero," from *The Kandy-Kolored Tangerine-Flake Streamline Baby*. Farrar, Strauss & Giroux, 1965, p. 106.

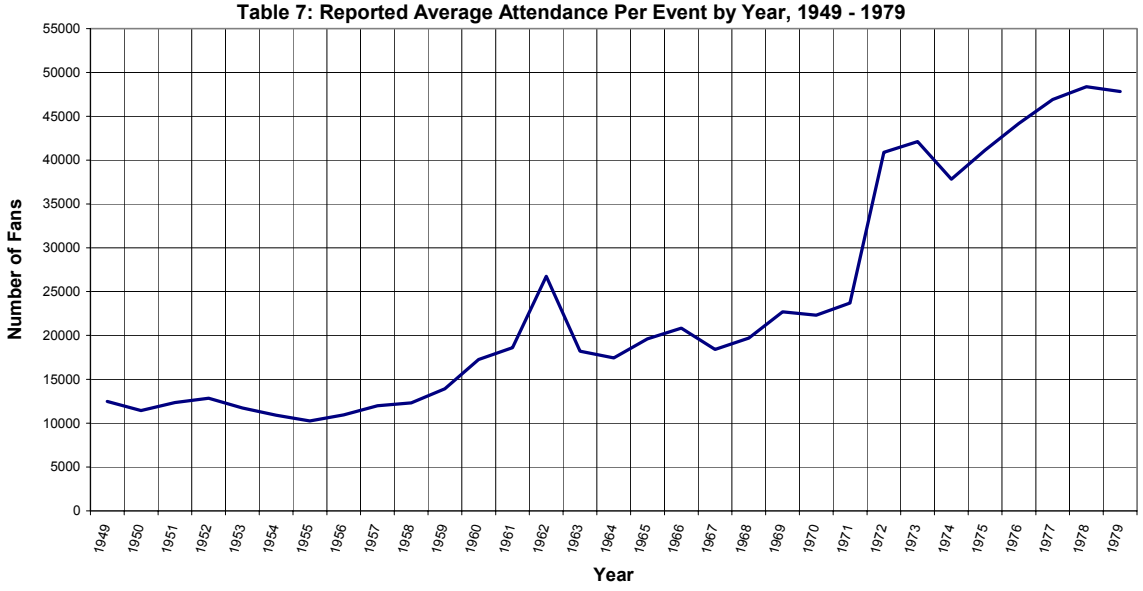
southerners to races. Throughout the South, fans expressed the intensity of their enthusiasm by driving across the Southland to watch stock cars circle a track.

After the tracks at Daytona, Charlotte and Atlanta began business, it was eight years before another Superspeedway opened. During 1969, a two-mile oval sixty miles west of Detroit called Michigan International Speedway and a 2.66-mile track forty miles east of Birmingham Alabama called Talladega hosted their First NASCAR Grand National events. Also in 1969, in an apparent move to capture some of the prestige associated with the speeds possible at superspeedways, the one-mile North Carolina Motor Speedway at Rockingham was rebuilt with 24 degree banking in the corners. The other new superspeedways were built with high banks and high speeds in mind from the beginning. The track in Michigan was built in rather conventional manner with long, flat straightaways and concave banking in the turns. The track at Talladega was designed to promote the fastest possible racing. At 2.66 miles in length, with 33 degree banking in the turns, Talladega instantly became the biggest, fastest superspeedway anywhere. In time, the demands this track placed upon cars, especially tires, would represent prompt the end of the superspeedway era and the rise off restrictor plate racing.

Apart from advantages rendered by bringing prestige to the south, moving from dirt to asphalt, and then from asphalt “bullrings” to big speedways made economic sense. While certainly cheaper to build, the common half-mile dirt track typically could not accommodate nearly as many fans as a superspeedway. NASCAR and the promoters funding stock car events no doubt realized that the costs involved in staging one superspeedway event for 100,000 fans was more cost effective than staging ten events for 10,000 fans. A chart of average attendance per event (See Table 7) shows the gradual, continuous increase in average attendance possible with the introduction of larger venues. Though the dramatic increase in average attendance experienced during the mid-1960s can be partly attributed to increased publicity, the later spike during the

1970s is attributable to the presence of the superspeedway. In 1972, when the minimum length of races was set at 250 miles, smaller tracks on the series could no longer attract the top tier of stock car racing. Events on the Grand National level, which by then were known as the Winston Cup, were staged primarily at larger venues. Despite fewer races after 1972, these larger venues meant increased profits for track owners, promoters and NASCAR. For prestige and profit, bigger venues were the way to go.

Table 7: Reported Average Attendance Per Event by Year, 1949 - 1979



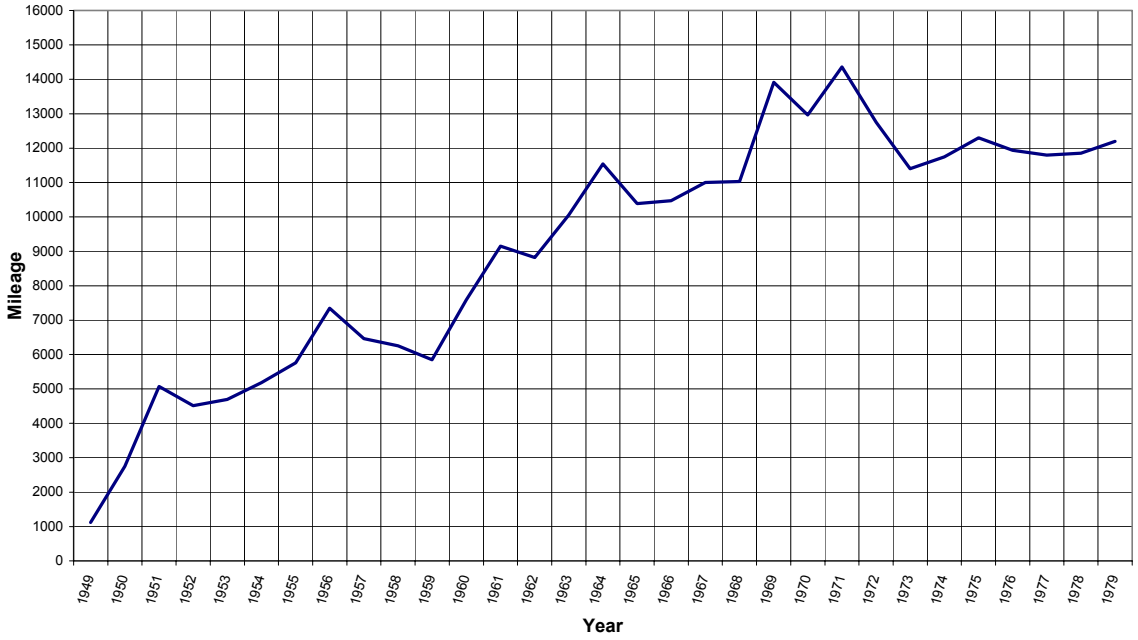
The dramatic increase in average attendance for 1962, and subsequent dramatic decrease in average attendace for 1963 is due to differing levels of reportage. In 1962, there exists data for 31of 53 events while in 1963, there are attendance figures for 48 of 55 events. Many of the events not reported were smaller races.

Data Extracted From: Greg Fielden, *Forty Years of Stock Car Racing*, (Surfside, SC: Galfield Press, 1992), Vol.1-4

Because racers were starting fewer races does not mean that they were racing fewer miles. As the number of racers and fans grew, promoters and track owners sought to enhance the prestige of their races and the number of paying customers by expanding the distance of the premier events they hosted each year. Superspeedways brought a trend toward fewer events, but these were invested with more gravity and importance. The total advertised racing mileage in 1950 Grand National races was 2,750 miles. By

1960, the sum of race mileage was over 7,585 miles. By 1968, on-track race miles covered by the Grand National circuit totaled over 11,000 miles. (See Table 8) During these same years, the average length of races jumped from just over 144 miles in 1950 to 225 in 1968.[447]

Table 8: Racing Miles Per Year, 1949 - 1979



Data Extracted From: Greg Fielden, *Forty Years of Stock Car Racing* , (Surfside, SC: Galfield Press, 1992), Vol. 1-4.

While providing more lengthy entertainment for fans, longer races also placed more demands upon racers and vehicles. Race machinery and conduct assumed a more radically competitive form, with pit stops and car preparation assuming as much importance as a race time action on the track. As NASCAR Champion Junior Johnson explains it, "You have to set the car up to make it do what it's supposed to do on asphalt. On dirt, you could make it do what you wanted it to do."[448] The transition to high speeds

[447] Fielden Vols.1,2,3
[448] Junior Johnson Interview, "Speed and Spirit", Smithsonian Institution Transportation Collection, NMAH, Washinton, D.C.

and asphalt made the strength and exact configuration of racecar technology more important.

In addition to transforming the fans expectations of what constituted a proper venue, the superspeedway transformed the idea of what a race vehicle was supposed to be. Before the transition to paved tracks like Darlington, the vehicles in competition resembled, to a large degree, stock production models.[449] In the beginning of NASCAR racing, the dirt tracks that for years had hosted contests between drivers in stripped down "Modifieds" and "Sportsman" cars offered a familiar environment for the new stock racers. Generally shorter in length, and banked less than later asphalt tracks, dirt tracks favored a "slideways" racing style wherein the rear end of the car was prompted to sling toward the outside of the track as the driver used the throttle to power the car through a turn. As Junior Johnson describes it, "I could sit and tease the back end of a car within an inch of running it wide open on dirt because I knew just how far they could go before they come all the way around. You had to keep with the front wheels because you got them cut to the right, it's absolute feel of the seat of your pants to tell where that backend's at all the time."[450] Though it made for dramatic racing, the traction limitations of dirt made slower overall contests. As a result, the formative years of NASCAR Grand National racing saw the successful utilization of generations of unsophisticated equipment built with blowtorches and bailing wire. Dog collars held doors shut, masking tape protected headlights, and rollbars were occasionally built of wood. While such homespun race preparation was suitable for the relatively slow dirt track production-based racing typical throughout the thirties and forties, asphalt required vehicles capable of withstanding more severe use. The rigors of racing on asphalt ultimately shaped a robust racing chassis standardized across model and make.

---

[449] NASCAR, *1948 Stock Car Competition Rules*, ISC archives, Daytona Beach, FL.
[450] Junior Johnson Interview, "Speed and Spirit", Smithsonian Institution Transportation Collection, NMAH, Washington, D.C.

Most of the initial changes increased the safety of the race vehicles. Throughout the fifties, though the motors remained production derivations, the stock car chassis began to reflect the elevated and frequently dangerous speed of operation in its paved environment. NASCAR permitted, later encouraged and finally mandated the use of redesigned rear axle hubs that would not allow wheels to detach if an axle broke under the strain of competition.[451] Each fatal or particularly disastrous wreck prompted the addition of roll bars to the mandatory roll cage described in the rule books. Accident prevention, in the case of the rear axle, and mishap survival, in the case of the continually developing roll cage, helped create what was in effect, a completely new chassis suitable only for racing.

The increasingly sophisticated nature of safe, competitive equipment prompted an increase in entrepreneurs and businesses engaged in racecar construction, component manufacture and racecar preparation. Teams that could afford to build cars suited to specific types of tracks were at an advantage. Indeed, the superspeedway efforts of Ford became so specialized that at various times during the mid-1960s their premier teams did not compete at the smaller races on short tracks. After the introduction of the restrictor plates at the close of the decade, the teams that could fund an engine development program specifically for the superspeedway were at a tremendous disadvantage. Ultimately the specialized equipment required for success on the superspeedways encouraged the trend toward larger racing teams, and larger sponsors. In time, the development of these specialized echelons of support made the part time racer or sponsorless privateer an exception rather than the norm.

The transition from dirt to asphalt also changed the sort of engines that dominated races. For vehicles of stock weight using stock tires on dirt, only so much

[451] NASCAR, *1950 Stock Car Competition Rules*, (Daytona Beach: NASCAR, 1950) p.15.

horsepower is of use before traction is lost. When racing on short, dirt tracks, torque as a constituent of overall horsepower is most important for winning races. Cars with lots of torque, cars such as the Hudson Hornet, dominated the early days of NASCAR dirt track racing because they had the sort of power necessary to quickly move themselves out of turns. The long engine stroke and substantial rotating mass required to produce torque was a competitive disadvantage on the larger asphalt tracks where high speeds constitute a considerable portion of the overall race distance. Because of this, on asphalt there was also a clear advantage to having lots of high RPM power rather than lots of low RPM torque. The increase of smooth, paved tracks and the superior traction they afforded, meant that horsepower translated into speed rather than wheel spin. The transition to asphalt favored the more powerful, higher revving V8's introduced by the big three during the 1950s. Thus teams which could afford more horsepower either through buying more powerful cars to begin with or spending time reworking stock components to build more horsepower were at an advantage. As racing became a profession, and race mechanics a necessity, a group of technical specialists developed around the necessity of modifying stock components for various race conditions. As argued previously, the convergence of American engine design, with each automaker producing a V8, meant that communities of users developed skills necessary to wring horsepower from production components.

The possibility of racing in a production-based series, on a track that permitted incredible speeds, was a temptation that proved irresistible to the race minded engineers and executives in the auto manufacturers. Despite the din of protests from safety conscious insurance companies and a 1957 Automobile Manufacturers Association (AMA) ban on direct factory involvement racing, Detroit continued to develop optional high performance components to compete on NASCAR tracks, even publishing

performance guides cataloging available equipment and relating detailed technical advice.[452]

With the opening of Daytona International Speedway in 1959, the covert development of full race performance parts quickened. Famous NASCAR mechanic Smokey Yunick described the lengths that Pontiac went to help him win big races. In reference to the money spent developing new "optional equipment" to keep Pontiac racecars in front of the competition, he writes

> by the start of the 1960 season we are changing part numbers every 10 minutes… we did 'bout anything we wanted to, but had to have a part number in the book. In '60 Russ Gee, a young Pontiac engineer … is hand-carrying cylinder heads and headers and parts on airlines to me in Daytona. Through his efforts we got aluminum brake parts, aluminum rear axle parts and we are playing two four barrels [carburetors] and three two barrels. I don't want to see the aluminum body parts or aluminum brake and suspension parts, or the aluminum drive train pieces, but she's out of control now.[453]

Despite the AMA ban on racing, it is clear that Pontiac, and probably Chevrolet and Chrysler, were spending massive amounts of money putting optional parts in limited production. Though Bill France wanted to build a huge speedway in Daytona even before the withdrawal of factory support from racing, perhaps the greatest consequence of the superspeedways was that they proved irresistible to automakers. In an era marked by fascination with speed, demonstrating performance in a race between "stock" cars, even after entering into an agreement not to race, was too valuable a promotional exercise for automakers to resist.

---

[452] *1962 Pontiac Special Equipment Catalog and Reference Guide*, (Detroit: Pontiac Division, General Motors Corportation, 1962) *1957 Chevrolet Stock Car Competition Guide*, (Detroit: Chevrolet Division, General Motors Corporation, 1957)
[453] Yunick, p.296.

The expenditure of effort to win at the superspeedways suggests that the bigger the track, the greater the public relations impact. The lure was great enough to help prompt the collapse of the voluntary AMA ban on racing. In June of 1962, Ford Motor Company announced that it no longer felt obliged to adhere to the AMA ban on racing. Because so many automakers had been campaigning virtual factory teams "out the back door" of engineering departments, through dealerships, and through seasoned NASCAR mechanics, Ford officially announced a "Total Performance" race program intended to dominate most forms of motor sport.[454] Once Ford broke rank, Chrysler too went public with its racing efforts. Even though General Motors did not officially reject the ban, for all practical purposes it was defunct. The breakup of the AMA ban, and the subsequent battles between automakers, brought new attention to the superspeedways.

After finishing off the 1962 season with lackluster performance, Ford spent the winter preparing for a showdown at the highly publicized Daytona 500 at the end of February. During the same month, albeit with less fanfare, Chevrolet racers at Daytona introduced a new 427 cubic inch engine developed specifically for racing.[455] This so-called "mystery motor," which never saw actual production, featured high performance valve configuration and intake design not well suited to volume production or use in a street vehicle.[456] Despite the high horsepower possible with the experimental Chevrolet engine, Ford won the top five places and a huge public relations victory at the Daytona

---

[454] Lyle Kenyon Engle, *The Book of Ford –Powered Performance Cars*, (New York, Pocket Books, 1967) p.1, Leo Levine, *Ford: The Dust and Glory*, (New York: Macmillan, 1968) p.253. It should be noted that while Ford applied considerable resources to many forms of motor sport, the AMA ban dealt primarily with issues related to stock car racing. The "Total Performance" campaign has been cited as the primary reason that Chrysler went public with its racing programs.

[455] Wayne Thoms, "Is Chevrolet Back In Racing: Signs of the Times Say Yes, But Official Policy is Still No," *Car Life*, October, 1965, p.10-11.

[456] Yunick, 199-200. The so-called "porcupine" valve arrangements has inlet and exhaust ports arranged on different planes. While more expensive to machine, this arrangement offers superior combustion chamber filling than more conventional arrangements with engine valves arranged on the same plane.

500 in 1963. Following the speedway event, apparently fearing bad publicity from violation of the ban on racing, Chevrolet again withdrew from direct support of stock car racing for nearly two decades. Despite Chevrolet's withdrawal, the battle over dominance continued. This time the war was between Chrysler and Ford.

The so-called "engine wars" engaged between auto manufacturers during the 1960s were played out on the banks of the superspeedways. Beginning with the introduction of the Chrysler 300 in 1955, the displacement and horsepower of manufacturer's engines ballooned throughout the late 1950s and early 1960s. Typically high performance packages would be offered as options rather than standard. NASCAR required that only five hundred of a given option package be made available in order to deem a high performance item a stock production component.[457] Initially, most performance options were similar to those sold on super duty or police vehicles. Factories could cheaply support racing by listing production speed parts without developing a completely new production model.[458] In this way factories could develop and sell, stronger suspension components, multiple carburetors, heavy duty engine blocks, forged crankshafts, high load engine bearings, increased capacity cooling systems and high volume oil pumps without officially going racing.

In 1964 Chrysler responded with its 426 "Hemi" engine. Featuring a centrally located spark plug in a high efficiency hemispherical combustion chamber, the "hemi" was a race engine built into a street engine.[459] After Chrysler trounced the competition in

---

[457] John Craft, *The Anatomy and Development of the Stock Car*, (Osceola, WI: MBI, 1993), p.9

[458] Kim Chapin, *Fast As White Lighting: The Story of Stock Car Racing*,(New York: Three Rivers Press, 1998) p.103-106

[459] The flow efficiency of this design was excellent, but thermal efficiency was not high because of the large amount of surface area in the combustion chamber. Though first used by Peugeot in 1903, Chrysler introduced their first "Hemi" V8 in 1953. In this design, deep hemispherical combustion chambers were cast into the cylinder head. The centrally located spark plug possible with this design promoted uniform and complete combustion as the flame front travels outward concentrically

1964, NASCAR decided to try and level the playing field. In response to rule changes clearly intended to end the dominance of one factory, Chrysler boycotted NASCAR racing in 1965. NASCAR lured Chrysler back into competition by limiting Ford's advantage the following year. In response, Ford stayed out during 1966. Throughout the 1960's, Ford and Chrysler would battle it out as each lobbied with NASCAR to sanction the use of some "production" engine with exotic multiple carburetor configurations, roller camshafts, overhead cams, or some other high performance mechanical complexity. By 1968 NASCAR had a handle on these so called "engine wars" by mandating the use of only one four barrel carburetor regardless of what was available as an option, and limiting the overall displacement to 427 cubic inches.[460]

The engine wars had been about beating the competition at the big tracks in full view of large numbers of fans. By the mid-1960s, the marketing potential of NASCAR had been fully realized by the big three automakers. Ward's Automotive Reports stated that Ford's "28.3 percent market slice in the South Atlantic states in 1966, in the heart of the racing circuit, was its highest of any region in the United States."[461] Clearly money spent on racing could be justified in increased sales. But for NASCAR the tremendous performance gains generated by factory involvement were a mixed blessing. Realizing that close competition rather than dominance by a single manufacturer sold race tickets, NASCAR acted yearly to quench the creative fires of corporate engine designers. Assertion of control over spiraling annual enhancement of engine horsepower left the factories with two options: they could compete against each other on a level playing

---

through each charge of fuel/air mixture. The hemispherical shape allowed larger valves because they could be set at an angle inside the head.

[460] NASCAR, *1967 Stock Car Competition Rule Book*, (Daytona Beach: NASCAR, 1967) p.56

[461] AR-86-71-482, Ford Motor Company Motorsports Collection, Papers 1960-1971, Ford Archives, Dearborn Michigan.

field, or search outside the engine compartment for some place to find a competitive advantage.

As early as 1966, Ford had begun informally experimenting with aerodynamic body designs. Junior Johnson, who raced Fords before and during the factory boycott of 1966, built a heavily modified Galaxie to compete in the spring race at the Atlanta International Raceway.[462] Using advice from Ford's engineering department and auto body work techniques not unlike those practiced by hot rodders, Johnson lowered the grille and the front edge of the hood and raised the back edge of the truck to produce an aerodynamically superior car. Lowering the hood decreased the frontal area and helped coax air over the top of the car. Sloping the back half of the car upward raised the back edge of the trunk lid into a crude, traction enhancing airfoil. Though this car was banned before its second race, the lessons of this exercise were not lost on the competition department in Dearborn.

Picking up where Junior had left off, by 1969 famed stock car racer Ralph Moody had modified a stock Ford Torino body into an aerodynamically sophisticated fastback. Moody's car reflected techniques pioneered by hot rodders and was essentially a chopped and sectioned street car with a tapered nose. Ford was so confident in Moody, and so willing to invest in racing, that they shipped him and his car to Dearborn to refine and help design a production model closely following this prototype.[463] Called the "Torino Talladega" after the new NASCAR-owned superspeedway then under construction, the aerodynamic shape and well developed engine of the Ford's limited production racer would dominate the big races at the big venues for two years. The success of the "Talladega" and its like-bodied stable mate the "Mercury Cyclone Spoiler" was not lost on other manufacturers.

---

[462] Craft, p.55
[463] John Craft, interviewed by the author, Daytona Beach November, 2001.

Figure 13: Ford Torino "Talladega" limited production aerodynamic 'stocker'

Image courtesy: International Motorsports Hall Of Fame archives, Talladega, AL.

As with the "engine wars" the aero wars consisted primarily of expensive development by one factory followed by more extensive (and typically more expensive) development by a competitor. The aerodynamic shape of the Torino Talladega was the first effort to build a car capable of combining race-legal engine technology and NASCAR's minimum weight requirements with aerodynamic sophistication. The Dodge Charger "Daytona" represents the second round of the so-called "aero wars" that occupied the talent and resources of factory competition departments after NASCAR enforced a stalemate on horsepower. When production began midway through 1969, over 2600 production "Daytonas" were built to satisfy NASCAR's so-called homologation requirements, minimum quantity to be considered a true production car.[464] The Dodge Daytona and the Plymouth Roadrunner were essentially the existing "B Body" production model Dodge Charger and Plymouth Satellite heavily modified through the application of a seven-foot-high spoiler and an aerodynamic nose cone. Developing the "Superbirds," as the Daytona Charger and Plymouth Roadrunner came to be known, required a heavy expenditure of engineering and development time. Enough money was spent on

[464] Ken Noffsinger historian for the National Chrysler "B Body" Association, phone interview with the author, January, 1999.

development and tooling to attract attention from the Society of Automotive Engineers (SAE). A 1970 SAE paper describes just how much effort went into developing the aerodynamics of Chrysler's racecar. Two separate wind tunnel programs and a track testing program using recently developed on-board data acquisition techniques were carried out to refine the initial design. The preliminary wind tunnel testing involved 3/8 scale models with interchangeable nose and rear window sections that facilitated assorted aerodynamic configurations. Extensive tests were carried out with the model in the Beech Aircraft Corporation wind tunnel at Wichita State. Tests on larger, more refined models were then conducted in the wind tunnel of aircraft manufacturer Lockheed in Marietta, Georgia before a full scale test version was ready for appraisal by test drivers.[465] Period photographs reveal extensive testing at Chrysler's Chelsea, Michigan proving grounds, including the use of aerodynamic test and data recording apparatus. The cost of engineering expertise and wind tunnel time must have been substantial. Such expenditure gives some idea of the value assigned to winning stock car races.

[465] Marcell, R.P. and Romberg, G.F., "The Aerodynamic Development of the Charger Daytona for Stock Car Competition," SAE paper number 700036 presented at the Automotive Engineering Congress, January 1970.

Figure 14: The Dodge Charger “Datyona”, built for competition on the “superspeedways,” was also known as the “Superbird.”

Image courtesy: International Motorsports Hall Of Fame archives, Talladega, AL.

Clearly, successful participation in NASCAR big track racing was a corporate priority as the resources required to produce 2600 “factory racecars” no doubt exceeded the cost development by a wide margin. Corporate correspondence reveals that outside suppliers were contracted to build the spoiler wing sections to exact airfoil specifications while a significant amount of capital was invested in the tooling to stamp the nose cones from steel.[466] At no small expense, a manufacturer had inverted the relationship between production and purpose built racecars by mass-producing a race chassis with little pretense about practicality or widespread market appeal.

From the beginning, it was clear that neither Ford nor Chrysler were interested in recouping fixed production costs. Ford only made a few more than 750 “Torino

[466] Greg Kiatakowski collection, correspondence dated September, 11, 1968, Kitakowski Chrysler employee and “superbird” enthusiast.

Talladegas," hardly enough to recover tooling costs. Yet even at this limited production quantity, there were further tooling costs for very limited production parts suited only for use on the track. Artifacts found at Smokey Yunick's "Best Damn Garage in Town" show the incredible lengths and expense that automakers were willing (and able) to go to in order to win on the superspeedways.[467]

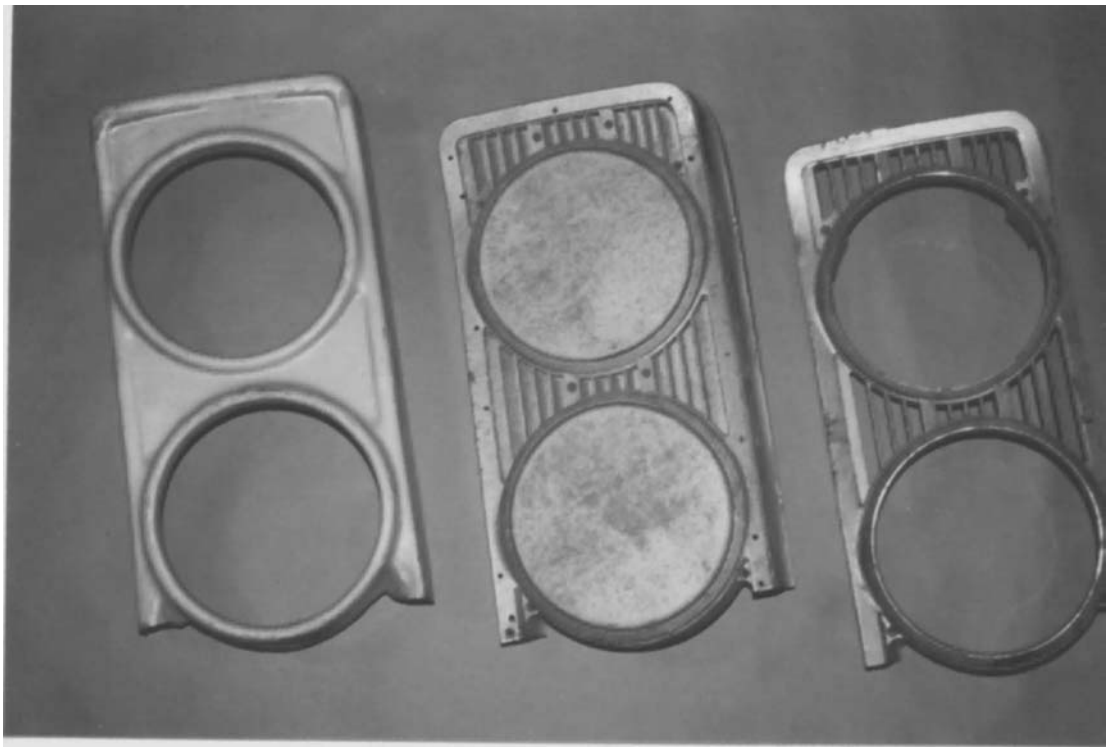


Figure 15: Torino "Talladega" headlight rims

Image from author's collection

The artifacts pictured are headlight rims, artifacts that illustrate the depth and detail of expenditure made to win races. Of the three headlight rims pictured, the one on the right is a stock, chrome-plated die casting. The version in the center has been race

[467] Found by the author while conducting an inventory of Smokey Yunick's workshop, these headlight rims were part of a massive performance parts inventory received by Smokey in 1969 when he went to work briefly for Ford Motor Company.

modified with aluminum discs riveted to the inside of the casting, filling the headlight holes and cast grills to prevent air from entering the front of the car at speed. This version was probably built as a spare. The version on the left is a special aluminum stamping built to look similar to stock, but weigh much less. The cost of producing the tooling to stamp specialized lightweight components intended only for racing versions of an already specialized car must have been huge.

Practical expenditures or even practicality in use were apparently not a consideration for Chrysler either. Quoted in the NASCAR Newsletter issued just following the introduction of the Dodge Daytona, Chrysler's director of engineering Robert M. Rodgers stated, "The cars we engineer for stock car racing are developed to perform best on oval tracks at 180 miles an hour, not on the open highways at 60 or 70."[468] At nearly nineteen feet in length, and close to seven feet tall at the rear spoiler, the superbirds were difficult to maneuver anywhere but on the racetrack. The tiny grill opening caused regular overheating if the cars were operated anywhere but the open road. Failure prone aerodynamic "pop-up" headlights added to the lack of utility. Though terribly fast on the superspeedways, superbirds were hardly a practical expression of the auto maker's craft.

The creation and use of "aero warrior" cars from Ford and Chrysler marked the high tide of direct corporate involvement in NASCAR. Uninhibited expenditure accrued tremendous advantage for Chrysler's racing program during the second half of 1969 and 1970 racing season. The "superbirds" were phenomenally successful, winning a higher percentage of races entered than any other make of vehicle in NASCAR history.[469] Despite this success, the superbird would ultimately bring about changes which would spell the end of the superspeedway era.

---

[468] *NASCAR Newsletter*, July 15 1969, p.4
[469] http://aerowarriors.com

These changes began with the disastrous introduction of the Dodge “Daytona” at the inaugural race in Talladega on September 14, 1969. At this race, the technological capacity of the factory built race supercars clashed with the system of relations and business practice that governed NASCAR events. Talladega, the track that had given the Ford aero racer its name, was the biggest superspeedway built for NASCAR competition. At 2.66 miles in length, with curves banked to 33 degrees, the Talladega International Speedway was thought to be capable of sustaining tremendous speeds. During the week before the opening race, qualifying verified the capacity of Talladega and demonstrated the speed potential of the Dodge Daytona. The car recorded top speeds in excess of 199 miles an hour. Talladega was poised to become the supreme superspeedway, producing the biggest spectacle and the highest speeds.

Figure 16: Aerial Photo of the Alabama International Motor Speedway at Talladega

Image courtesy: International Motorsports Hall Of Fame archives, Talladega, AL.

But the debut of the superspeedway at Talladega was not without problems. During the course of realizing such phenomenal speeds, participants brought many troubles to light. The paving had been rushed and was rough. As a consequence, tires tended to last just a few laps. To make matters worse, drivers complained in public

about the harsh condition of the track. Driver David Pearson commented, “My dash rattled and my gearshift lever jumped around like it wasn’t fastened down. The first turn, the worst as far as I’m concerned, gives you the feeling that your stomach is tearing loose.”[470] Other drivers complained that the rough conditions prompted temporary blindness and extreme fatigue while driving.

Firestone withdrew its tires from the race, but NASCAR insisted that the show must go on regardless of the danger. Bobby Allison recalls a discussion he had with Bill France regarding the dangers of racing on the new track. He suggested that France, “get a representative from Dodge and a representative from Ford and Chrysler and Ford, a representative from the independents and go and disable everyone’s back barrels on their carburetors and make everybody run a two-barrel carburetor and we can have a great race.” To which Bill France replied, “If you’re scared, go home.”

At this crucial juncture it became clear that stock car racers were brave, but not stupid. Afraid that the Talladega 500 would become a parade of wrecks, the drivers organized to confront NASCAR president, Bill France. After rejecting a suggestion by Bill France that the drivers simply race at slower speeds, the newly formed “Professional Drivers Association” decided to withdraw its members from the race. Most of the top drivers, stars like David Pearson, Cale Yarborough, and Richard Petty, sat out the race. The race did go on, albeit with a greatly reduced field of competitors drawn up from lower racing divisions. NASCAR had run aground on its own ambition. Seeking status as the fastest racing on the biggest tracks, they had allowed factory technological development to outstrip the capacity of their drivers, the tire supplier, and their newest superspeedway.

---

[470] Leonard Laye, “Talladega’s Troubled Baptism,” *Motor Trend*, November, 1969, p.35.

Later, as if to confirm that top speeds had reached excessive levels, it was determined that the discomfort described by the drivers was the "pogo" effect, a phenomenon discovered during the course of NASA testing.[471] The "pogo" effect is caused by a combination of G-forces with vibration at specific frequency and amplitude. Symptoms include chest pains, momentary blindness, and nausea. Obviously NASCAR could not have predicted such disastrous consequences of joining a track built a bit rough with the latest rocket ships from Detroit. The crudely sprung chassis of the stock racecars, when driven on the rough pavement of the Talladega track fatally disrupted the delicate balance NASCAR had negotiated since its inception two decades before.[472]

Needless to say, the first Grand National race at Talladega was a tremendous flop. It also effectively signaled a watershed for racing on the huge tracks at Daytona and Talladega. Though competitive racing continued on the giant ovals, it would never again rest upon a combination of unlimited corporate-funded science, unfettered pursuit of speed and mass entertainment. The process that rendered the Dodge Daytona and ultimately the debacle at Talladega symbolizes the problem faced by NASCAR. The superspeedway had attracted the factories, and now that they were willing to throw their weight around, NASCAR had lost control of the technology. The disastrous boycott years of 1965 and 1966 were brought about by technological developments beyond reasonable application for racing and damaged the credibility of stock car racing. After both of the big factory efforts returned to the superspeedways, they produced racing of limited entertainment value. Ford dominance with the Torino Talladega and later the dominance of the high-winged Dodge Daytona began to render rather one sided races.

---

[471] Bob Wright interview with Ken Noffsinger, June 2001. Wright was one of the Chrysler race engineers had been involved with the Apollo program. He calculated the frequency resulting from the undulations in the Talladega track, and determined that the temporary blindness and lack of breath described by drivers was due to the "pogo effect."

[472] Layne, p.36.

The fact was that large business institutions had far more means to develop and produce technology than NASCAR had at its disposal for regulation. This made for boring racing and disgruntled racers. The cost and expertise required to develop a competitive racecar had blasted into orbit, far beyond the means of any racers but those supported by the big three. After 1971, Ford motor company withdrew from direct participation in racing.

In 1970 and 1971, NASCAR introduced a series of rule changes designed to wrest technological initiative from the auto makers.[473] Initially they instituted use of a restrictor that decreased the size of the carburetor venturi from 1 1&11/16 inches to 1&1/4 inches.[474] Later, they mandated that special aerodynamic cars would only be allowed to compete with the "small block" engines of each manufacturer.[475] The changes made it clear that science, speed and entertainment were appropriate so long as NASCAR controlled all three. Too much science and speed, it had been demonstrated at Talladega, threatened to ruin the entertainment value, and thus the appeal of stock car racing. Chrysler and Ford experimented against each other to cheat the wind and find victory on the huge, high-banked oval at Talladega, only to surpass existing tire technology and reasonable limits of safety. Their engineering hubris also threatened to remove diving skill from the contest. Though races were still recognized as contests between drivers as well as machines, the dominance of cars like the Torino Talladega and Chrysler's superbirds threatened to remove the heroes from NASCAR racing.

---

[473] NASCAR, *1970 Stock Car Competition Rules*, (Daytona Beach, FL: NASCAR, 1970) p.54, NASCAR, *1971 Stock Car Competition Rules*, (Daytona Beach, FL: NASCAR, 1971) p. 58.

[474] Decreasing the venture size decreased the amount of "working fluid" (air and fuel mixture) that could get into the engine at a given time – effectively lowering rpm and horsepower.

[475] These so-called "small block" engines had substantially smaller displacement than the larger engines permitted under NASCAR rules.

NASCAR took the first step toward establishing a stock car formula for the design of racing chassis, engine selection and body configuration. Rather than rely on production figures to determine what a stock car was, NASCAR assumed the power to determine what was stock. In order to maintain competition, NASCAR would have to be specific, selecting what cars were appropriate for competition after the fact, not relying on production numbers to determine what was a "stock" vehicle. Existing aerodynamic automobile exotica were permitted to compete, but only with a severe handicap of 305 cubic inches maximum engine displacement.[476] By assuming control over the definition of stock, NASCAR reestablished its ability to determine the elements necessary to produce close competition, and reasserted its control over the entertainment spectacle.

Though NASCAR nearly lost control of the speed and direction of technological development, the era of the superspeedway did bring precious publicity to stock car racing. Between 1955 and 1965, other periodicals such as *Motor Trend*, *Car Life*, *Hot Rod*, and *Road and Track* carried occasional references to stock car racing that could hardly be considered comprehensive coverage. Though these magazines did keep NASCAR at least on the periphery of motor sport reporting, the emphasis was not like that given to stock car racing during its initial boom period before 1957.

The frequency and depth of articles covering stock car racing did not increase until the mid-1960s when the influx of capital contributed to the sport by Ford and Chrysler became too massive to be ignored by responsible motor sport journalists. The influential 1965 article by Tom Wolfe for *Esquire* magazine describing Junior Johnson as the "Last American Hero" also drew attention to the sport. During second half of the 1960s, the coverage of stock car racing offered by general interest automotive magazines, and *Motor Trend* in particular, grew in scope and frequency. That this increased coverage coincided with a decade-long influx of factory funding is no

[476] Fielden, Vol. 3, p.320.

coincidence. What began with Ford Motor Company dropping out of their part of AMA's mutual ban on racing in 1963 resulted in a frenzy of expenditure by the three biggest American automakers. In 1965, Ford spent over 2.3 million dollars on Stock car racing alone.[477] That Chrysler and Chevrolet stock cars remained competitive with Ford's "factory" race teams suggests that they made similar investments during the decade. "Detroit began putting so much money into the sport", Wolfe describes, "that it took on a kind of massive economic respectability." "Motorsports is the second or third largest spectator sport in the country and Ford is the most prominent name in the sport," echoed one Ford executive. "We therefore cannot make a move," he continued, "without creating news, good or bad."[478] The heavy technical and financial support provided overtly by Ford and Chrysler, and covertly by General Motors helped energize a southern renaissance for stock car racing that would forever label stock car racing a regional phenomenon. Whatever the causes, the net effect is that stock car racing emerged from rustic southern obscurity bourn by the promotional wit of NASCAR and capital from Detroit.

Other, more regional publications catered specifically to the stock car fan. The *Southern Motorsports Journal* began in 1961. Published in Tuscaloosa, Alabama, it offered detailed coverage of NASCAR events to diehard fans, some of whom apparently never attended an event. One letter to the editor from Aug 12, 1971 captured the powerful vicarious attraction of stock car racing. As one avid fan wrote, "We really enjoy your newspaper. It is really our only contact with racing and you can believe it settles lots of arguments when we get together down at the gas station."[479] Clearly the gang at the filling station gathered information through some means other than attending races. The

[477] Ford Division Program Of Racing and Related Activities For The Model Year 1966, July 13, 1965. Ford Motor Company Motorsports Collection, Papers 1960-1971, Ford Archives, Dearborn Michigan.
[478] Ibid.
[479] *Southern Motorsports Journal*, Tuscaloosa, vol.6, no.3, p.1

newspaper format of the *Southern Motorsports Journal* was supplemented by *Stock Car* magazine beginning in June of 1966.[480] This slick, full-color magazine was the first such publication devoted specifically to stock car racing. The combination of veteran motor sport reportage, and upscale format (even the NASCAR News was published in two colors as a tri-fold mailer) helped publicize the growing prestige and credibility of factory supported stock car racing. Magazine coverage also kept racing stars in focus, heightening the level of celebrity just as major sponsors began using the sport for product exposure.

In addition to promoting the development of heroes among fans, attention from the press also fueled the increasing attendance of stock car events. During the 1960s heyday of factory sponsorship, the average yearly attendance of NASCAR racing events increased steadily each year that did not include a boycott by factory supported teams.[481] The most dramatic increase was between 1962 and 1963 when Ford and Chrysler resumed overt support of racing and annual attendance increased 64 percent.[482] (See Table 1) The commercial success of emphasis on the entertainment needs of the fans is born out in growing prominence of race events, and growing annual attendance figures.

The culmination of the superspeedway era demonstrated that human artifice can stretch beyond human capacities. Two tides of technical developments had resulted from the irresistible scale and scope of the superspeedway. First, the “engine wars” prompted restriction, politicking and ultimately careful regulation. Second, the “aero wars” pushed beyond the exercise of reason and the capacity of regulation.

---

[480] *Stock Car Magazine*, Circle Publishing Company, Alexandria, VA, 1966.
[481] 1964 and 1965, where Chrysler and then Ford withdrew from active sponsorship of stock car racing saw dramatic declines in the yearly total of fans. Each year saw a decline of nearly 100,000 so that by 1965, even with a steadily increasing number of events, annual attendance fell to 700,000. When head-to-head factory competition resumed in 1966, totals quickly returned to an increasing trend.
[482] Data from Fielden, Vol.1-3

Manufacturers brought both notoriety and technical resources to the superspeedways, and as a consequence stock car racing left the small-time, dirt tracks of its origins behind. After the dust cleared, what remained was a racecar formula wholly determined by the sanctioning organization, a "specification" racecar that would carry NASCAR competition and commerce to new heights in its second quarter century.

By placing a premium upon promotion of its sport as an entertainment business, NASCAR inverted the traditional role of motor sport sanctioning institutions. Whereas groups like the AAA, NHRA, and USAC directed their efforts primarily toward ensuring fair competition according to regulations, NASCAR chose to focus on consistently creating big racing spectacles. A 1970 survey of personnel at 155 enthusiast magazines, newspapers, and radio and television stations conduced by one of the "Big Three" automakers to determine the scope of their continued financial support of drag racing, "showed that stock car racing was the most popular with auto racing fans" with drag racing a distant fourth behind Indy car racing and sports car racing.[483] The margin by which motor sport enthusiasts preferred production-based racing over forms such as USAC open-wheel Indy 500 style competition or drag racing was considerable. The report indicated that "Stock car racing was named first on 102 of 165 ballots" with Indy car, sports car, and drag racing scoring 32, 16, and 15 votes respectively. The article suggested that the "Work of the sanctioning bodies, the promoters, and the participation by auto manufacturers in promoting was credited with the advantages held by non-drag types of racing." Clearly the efforts of NASCAR in conjunction with the scale possible on Superspeedways, placed stock car racing into the lead among motor sport.

[483] Dowdall, Joe "Drag Racing enthusiasts are handed a real shock." *The Detroit News*, Saturday Oct 24, 1970.

CHAPTER 7

CONCLUSION

The adoption of pavement and the superspeedway coincided with developments in business organization and refinement of the stock car racing chassis to change the sport in fundamental ways. As a dramatic step away from the dirt tracks of grass-roots motor sport, the huge Darlington venue helped boost the credibility of NASCAR stock car racing. The adoption of paved racing surfaces on numerous existing tracks throughout the 1950s perpetuated the movement of NASCAR stock car racing toward the respectability and modernity of pavement. At the close of NASCAR's first decade, the new superspeedways at Daytona, Charlotte and Atlanta combined the respectability of a paved racing circuit with impressive scale. Larger tracks built at the close of the 1960s in Talladega, Alabama and Brooklyn, Michigan helped build the national reputation of NASCAR stock car racing even as they tested the limits of racing technology. As a result of the dramatic technological changes prompted by the scale and potential speed of the high-banked superspeedway, NASCAR ultimately seized complete control over the definition of a "stock car." Consolidation of control over the technical specifications of the race car during the first years of the 1970s severed any relationship between NASCAR stock car racing and a car from the stock of an automobile maker. Any residual association between stock car racing and automakers became purely symbolic.

Rather than suffer from the separation of production cars from production-based racing, NASCAR adapted to indirect association with the cars on the track. NASCAR was moving in a new direction toward using the cars as billboards promoting products. Sometimes these products were directly associated with automobiles, sometimes not. Again, by de-emphasizing the technical details of the car, and celebrating the

entertaining spectacle they helped produce, NASCAR was able to cultivate a new world of revenue from promotional association with the sport. Of primary importance among the new wave of sponsors in the 1970s was R.J. Reynolds tobacco.

Other important changes accompanied NASCAR's seizure of complete control over the specifications of the race car. The adoption of Grand National championship series by Reynolds Tobacco in 1971 fundamentally altered the business focus of NASCAR stock car racing and probably set the series on a course toward operating simultaneously as a motor sport and promotional medium. In 1970, Federal rulings prohibiting direct advertising using television left the tobacco industry with millions of dollars in advertising budgets and nowhere to spend it. By sponsoring a racing series, Winston could reap the benefits of national television exposure without violating the spirit of the advertising ban. This support included massive investments in print and billboard advertising, funding for improvements to tracks and a $100,000 contribution to the points championship. As a result the championship series was renamed the "Winston Cup".[484]

With this massive influx of capital and promotion, estimated to be near 40 million dollars during the 1970s, NASCAR could concentrate on addressing larger television markets.[485] As track manager and racing promoter Bruton Smith describes, "RJR/Nabisco really developed this sport. They promoted; they spent money at the speedways. They also taught us something about marketing. They gave us tremendous lessons on what to do. The change, the growth came when RJR/Nabisco came into the sport. They knew marketing. Nobody in the sport knew marketing."[486] NASCAR had been a sport with the potential to entertain but largely for crowds assembled at local arenas. The promotional acumen and ample supplies of cash brought in with the

---

[484] Fielden, Vol. 4
[485] Larry Hagstrom, *The NASCAR Way*, (New York: John Wiley and Sons, 1998), p.62.
[486] Bob Myers, "Bruton Smith", *Stock Car Racing Magazine*, April 1976, p.74.

creation of the Winston Cup transformed the business of the sport from entertainment to product marketing and promotion primed for the broadcasting arena.

There was a certain ease associated with the official linkage between NASCAR and Winston. North Carolina was the largest tobacco producing state in the country, and it also hosted the largest number of races. The headquarters of all of the major American cigarette producers were located in North Carolina. Furthermore, the 1970s saw increased concentration of race shops around Charlotte.[487] The convergence of these elements meant that NASCAR and Big Tobacco were synonymous with the upland region of North Carolina.

The adoption of the entire series by R.J. Reynolds was, for NASCAR, a happy accident that helped transform the sport into a series of genuine national significance. How it happened was pure chance. As sponsorship money transformed the sport, racers were compelled to perform on behalf of their sponsors rather than simply for prize money. Finding sponsorship required the sort of networking possible only with a mature sport. By the close of the 1960s, the stature of NASCAR stock car racing was sufficient to begin "opening doors" for competitors in search of financial backing for their racing efforts. In one instance a hunch turned into a jackpot for NASCAR. As Junior Johnson relates,

> The government has just pulled all television rights to stop people from advertising smoking on TV. I knew a lot of people that worked in Reynolds Tobacco because it ain't but forty miles from here. If they're coming off of television, they have a tremendous amount of money to do something with. I said, 'I am going to go get an appointment and go see would they consider

[487] The presence of influential racecar builder and parts supplier Holman Moody outside the Charlotte Airport, and the convenience to most races offered by locating in south central North Carolina prompted many teams to locate in the region. Throughout the 60s and 70s, shops in north Alabama, North Georgia, and Florida were gradually replaced by new enterprises near Charlotte.

sponsoring a race car.' I got it all set up and I went to see them and I sat down at the table with all the guys that handle the marketing part of Reynolds Tobacco Company. First thing that they hit me with is, 'What would it cost to run a race car?' Back in them days, eight or nine hundred thousand dollars was a big sponsor. I told them, 'I need somewhere between eight hundred and million dollars to run the car and run it right.' Of course, they laughed. They said, 'We have a budget of five hundred and seventy million dollars when we got hung out with television.' They said, 'That's what we're looking for, something that we can use that kind of money on.' They could have owned the whole NASCAR and everything else for that kind of money. I said, 'This is what I need.' They said, 'What would you suggest that we can do to get deeper involved?' I said, 'If you get deeper involved you need to go talk to NASCAR, Bill France, Sr. and do something with the racing organization.' They said, 'We don't know him. Will you hook him up with us?' I called France and told him what had happened and I went in to get a car sponsorship and they wanted to get deeper involved. He got a hold of them and they kept working towards a bigger deal and that's how the Winston Cup came about. It's been kindly a lucky thing for the whole sport, I think Winston getting in allowed NASCAR to get on TV. The exposure was unbelievable from that day on. They promoted the races with billboards and all kind of show cars and went out and paid for a lot of race tracks to be painted and upgraded and put up signs. Winston was probably the first thing that elevated the sport a tremendous step... I think it was the first big push that they ever got.[488]

[488] Junior Johnson interview, "Speed and Spirit: NASCAR in America," Smithsonian Institution Transportation Collection, NMAH, Washington, D.C.

The first step in improving NASCAR stock car racing as a vehicle for promotion was increasing the stature and scale of events. The details of the sponsorship agreement made Winston Cigarettes the title sponsor for races over 250 miles, and created a $200,000 prize to be awarded to the series champion at the close of the season.[489] The net result was that races of shorter length or those held on smaller tracks could not attract the star drivers and larger racing teams. Most of the races conducted on shorter tracks were phased out in 1972.[490] The imposing size and high-speed asphalt competition of the superspeedway and larger, sponsored teams with specialized roles became standard almost overnight. As a consequence, the days of the privateer driver who built his own car drew to a close by the end of the decade.[491]

Another, larger consequence of the changes bought by Winston dollars was the suitability of NASCAR racing for television. For R.J. Reynolds, Winston Cup racing was a way to get marketing for their product back on television. By staging large events on large speedways, NASCAR took on the sort of credibility that garnered television coverage. By the close of the decade, Winston dollars had sufficiently groomed the sport for consistent televised presentation. Broadcasting expanded the venue for NASCAR stock car racing far beyond the possibilities of the superspeedways. With this the possibilities for promotion and advertising using the "175 Mile-an-hour Billboards"[492] increased manifold.

Despite fulfilling the potential for massive, profitable racing events, the superspeedway introduced practical limitations to the physical size of a sports venue. If NASCAR was to gain new fans, and a new level of respectability, it would have to be through broadcasting. In time, the enhanced exposure brought through radio and

---

[489] Fielden, vol. 4, p.
[490] Fielden, vol. 1-4
[491] Henley Gray, phone interview with author, May 1999.
[492] Furman Bisher, *The Atlanta Journal*, from Jonathan Ingram, "The Battle of the Independents," *Southern Exposure*, Fall 1979, vol. VII, no.2, p.97

television helped NASCAR transcend the limitations of venue and traditional motor sport audiences to become a mainstream entertainment and marketing phenomenon.

As the largest motor sport event in the United States, the Indianapolis 500 was predictably ahead of other events in using broadcasting to sell the sport. In 1952, live radio broadcasts of the action began on Indianapolis radio station WIBC. These events were available for broadcast across the nation on International Motor Speedway Radio Network.[493] Part of the Indianapolis 500s status as the largest single-day sporting event in the world depended on the national presence possible through radio broadcasts.

Despite difficulties approaching the amount of media coverage offered the established "main event" in American auto racing, NASCAR too would use broadcasting to sell its sport. In 1957 NASCAR began building a radio broadcasting network presence by reporting the action of Speed Week activities on the Mutual Broadcasting System that aired nation-wide.[494] Annual Speed week activities, including the Daytona 500 enjoyed radio coverage from this year forward. Information on the radio presence of smaller events is more difficult to find. The obvious conflict between promoters advertising to bring fans to the race and radio coverage that might discourage attendance, as well as the probable use of their own airtime to advertise radio coverage, limited the amount of printed information devoted to radio broadcasting. A *Southern Motorsport Journal* account from fans that followed racing closely but never actually attended races suggested that radio augmented the information received in print form.[495] Given the desperate need for content suffered by smaller radio stations after the demise of network

[493] Johnson's Indy 500 http://www.geocities.com/johnsonindy500/reference/html 5/10/2004
[494] Radio reference from NASCAR NEWS
[495] *Southern Motorsports Journal*, vol.5, no.2, p.2

entertainment, it is reasonable to assume that the locally produced programs were aired live or as delayed broadcasts.[496]

In 1970 France created the Motor Racing Network (MRN), which helped bring uniform and reliable radio broadcasts of racing events to loyal fans. Though the MRN broadcasts as relayed throughout the South and in select markets nation wide did help to introduce the sport to new fans, it primarily served those already familiar with the sport.

Yet radio had shortcomings that could not bring many new fans to the sport in the age of televised entertainment. Barney Hall, one of the radio announcers present at the formation of the MRN, describes the medium." He notes, "There are only three things you can do on a race broadcast. One is telling people what's happening out on the racetrack, and in the pits when there are stops going on. And you talk to the drivers when they've fallen out, had an accident or had a mechanical problem. If you cover three things there's nothing you can do. That's it."[497] Obvious limitations of the radio format meant that Bill France would not settle on radio alone to project NASCAR stock car racing across the country. Instead, it seems MRN was one more element ensuring complete coverage of the market of potential race fans. The ubiquity of NASCAR's radio coverage served race fans who might otherwise be engaged and acquainted the curious listener with action on the track. Created as a component of France's International Speedway Corporation, the same enterprise that owned Daytona International Speedway, and the Alabama Motor Speedway in Talladega, MRN was a simple and inexpensive way of expanding the race venue through radio.

The ultimate expansion of venue occurred when motor sport became a staple on television. Televised races were initially somewhat of a novelty. Before the benefits of

---

[496] Erik Barnouw, *History of Broadcasting in the United States, The Golden Web 1933-1953*, (New York: Oxford University Press), p.227-228.
[497] http://dbserver.iscmotorsports.com/MRNRadio/index.cfm

continued television and radio presence were realized, the foundations of racing broadcasting were laid with short collaborations between the networks and NASCAR. On January 31, 1960, as part of the "CBS Sports Spectacular," the two 20-mile Grand National qualifying heats that determined pole position were televised live from Daytona International Speedway. Apparently this exhibition was a success as some estimates placed the audience at 17,000,000 viewers. Twelve days later NBC televised a previously taped four-lap "Autolite Challenge" invitational exhibition race during the Today show. At the time, a 500-mile stock car race, the sort of event common to superspeedways and most likely to show well on TV, lasted around four hours.[498] Though neither CBS nor NBC considered broadcasting anything like an entire event, their participation in broadcasting snippets of NASCAR's "Speed Week" action helped familiarize the networks and viewers to production-based racing. Though these first televised races were rather small events, they began a trend toward broadcasting that would transform the sport as NASCAR sought to expand even beyond the capacity of the superspeedway.

Building a presence on television was important for NASCAR. The largest motor sport event in the world, the Indianapolis 500, was the obvious benchmark for televised racing and NASCAR aspired to mimic its success. Beginning in 1964, the Indianapolis 500 was broadcast across the nation on ABC or tape delay. In order to limit competition with the live event, these broadcasts were taped and delayed in the Indianapolis area and elsewhere. The first iterations were delayed "same-day" coverage, then live with local blackouts.

Apparently convinced of the entertainment value of stock car racing, CBS continued to air edited versions of Grand National races during the weekly *CBS Sports*

[498] Fielden, Vol. 3. Autolite is a brand of spark plug.

Spectacular. Beginning in 1961, ABC entered the arena by broadcasting edited portions of the Firecracker 250 held at Daytona's superspeedway. This presentation, shortened to a more digestible 45 minute chunk of racing, aired on ABC's *Wide World of Sports*. In 1967, NASCAR experimented with a different broadcasting format, making the entire Daytona 500 available on closed circuit television. This apparently met with limited success and was not repeated in subsequent years. During the 1960s, the edited-for-television versions of NASCAR events continued to appear on the *Sports Spectacular* and *Wide World of Sports* programs. The format of these shows proved to be well suited to edited versions of longer NASCAR races. By cutting out the less exciting portions of competition and providing forty to forty-five minutes of dramatic highlights sandwiched between commercials these programs introduced production-based racing to a broad viewing audience.

During April 1971, ABC televised a delayed broadcast of all 100 laps of the "Greenville 200." ABC continued televising the final hour or hour-and-a-half of selected events live on the *Wide World of Sports* through 1978. After a brief hiatus from stock car presentation during the late 1960s, rival network CBS resumed NASCAR broadcasting on a tape delayed basis in 1975.[499] Even with limited exposure, NASCAR stock car racing entertainment continued to grow as a broadcasting subject. This growth would reach dramatic intensity during the winter of 1979.

The dramatic conclusion of the 1979 Daytona 500 was immediately significant because of the huge television audience. Severe winter weather throughout the northeast put an unusually large number of viewers in front of their television sets. Of this number, the majority chose to watch the Daytona 500, aired live in its entirety for the first time. Sixteen million viewers, more than twice as many as watched a professional golf tournament airing at the same time, watched the race conclusion. In the dramatic

[499] Fielden, Vol. 3

final lap of the race, superstars Bobby Allison and Cale Yarborough wrecked into each other and out of the race. Following their skidding, high-speed wreck into the infield of the Daytona tri-oval, the two competitors climbed out of their cars and began fighting. Television crews raced to the scene and captured the violence in close detail. Not until other racers stopped their cars at trackside and got out to restrain Allison and Yarborough was peace restored. Clearly the men participating in the 1979 Daytona 500 were intensely competitive and unafraid to express their desire to win. It was a dramatic conclusion of an unusually entertaining race. In addition to seeing a fistfight between two stars of the sport, there had been numerous lead changes and heated pit stop action.

For the first time many viewers were able to absorb just how big stock car racing had become and just how intense competition was among stock car racers. The venue was huge and packed with fans, the speed approached 200 miles-per-hour, the racing action was dramatic, and the scuffle between Allison and Yarborough was evidence of the passion with which competitors pursued this sport. Clearly for 120,000 fans packing the Daytona track, and for the racers brawling in the infield, this sport mattered. Most dramatically, fulfillment of violent potential the danger of stock car racing spectacle was revealed to audiences in graphic detail.

The 1979 Daytona 500 was a colorful conclusion to a decade of NASCAR emergence from the South. During the decades that saw dramatic Southern advances in the national political arena, and dramatic growth in the Southern sector of the national economy the dominant distinctive regional pastime had been growing as well. Because of the period of retrenchment between 1959 and 1969, NASCAR now emerged as a fully formed sporting series from the nation’s most dynamic region. After a period of consolidation down south, stock car racing burst on the national scene in dramatic fashion.

Yet the dramatic action on the track and fisticuffs after the leader's wreck were not the whole story. Most significantly, NASCAR stock car racing had proven itself as a televised entertainment event. Even though NASCAR had signed a five-year agreement with ABC to televise the Daytona 500 before the 1979 race, this was not permanent assurance of stock car programming. The ratings earned by the 1979 Daytona Broadcast, and the Emmy award the telecast won helped increase notoriety of stock car racing among the networks. The success of this and subsequent live broadcasts of the Daytona 500 initiated demand for televised racing. With growing live television coverage the final element for creation of a national sporting entertainment empire was in place. While superspeedways rendered tremendous profits and enhanced the status of stock car racing among motor sport enthusiasts, the only venue able to hold millions of viewers were the couches of America. Future expansion of audience, and therefore sponsorship, depended upon television. The ratings and notoriety this event helped build would mean that sponsors interested in a national advertising campaign could choose NASCAR and expect televised coverage every year. Consistently, the association between nationally marketed consumer products, stock car racing and television would grow.

After stock car racing established regular television presence, NASCAR and its racers, promoters, and sponsors were no longer limited by the number of seats and parking a track could accommodate nor threatened by the rougher clientele seeking weekend diversion from careers at the mill or gas station. Electronic media allowed the trials and triumphs of competition to reach the homes of middle class America, the coveted demographic slice best suited to the emerging mass advertising and mass entertainment potential of the sport.

With the stability offered by Winston, NASCAR and the stock car racing community could focus on capitalizing on the notoriety earned through two decades of

fierce racing competition. Among the earliest changes was the final resolution of the technical details of the competition equipment. With the withdrawal of Ford and Chrysler from active support of race teams during the first years of 1970, the final details of the competition equipment could be hammered out without interference from factories trying to gain a technological advantage. Put another way, with any conduits for direct feedback severed, the factories were no longer able or obliged to take any lessons learned from racing competition. By 1975, the chassis and engine combination were frozen to create a “formula stock.” The generosity of Winston ended any need for NASCAR to court factory involvement, so NASCAR could stop niggling with the details of new technological development.

Having a sponsor that was able to fund the entire series allowed NASCAR subtly but surely to change from an enterprise whose main focus was sanctioning entertainment to one equally interested in facilitating promotion. NASCAR developed numerous levels of sponsorship designed to attract advertising investment on many levels. These levels included the sponsors of the series, sponsors of specific events within the series, and the sponsors paying for the efforts of specific competitors. With television as a catalyst, NASCAR expanded the market for the events it sanctioned. In addition to entertainment, another product offered by NASCAR became the attention of fans. This new product suited the interests of corporate sponsors. In this, NASCAR was adopting a strategy long held by racers. Significantly, the sale of entertainment spectacle as a vehicle for advertising was on different scale than selling a portion of race car bodywork as advertising space. Yet the fundamental idea was the same: selling sponsors something that held the attention of fans. The potential for large-scale advertising offered by television was the key to selling every race team and the entire series to sponsors. If spectators didn’t mind looking at advertising on the cars as they raced (and historically they didn’t) televised billboards at 175 miles an hour was an ideal

advertising medium. Though NASCAR had benefited from a fan base that was primarily Southern, with television, a major series sponsor, and large venues capable of accommodating huge numbers of fans, they were ready to bring stock car racing to the whole country. If spectators began associating with the products being advertised by racing heroes in their favorite make of car, so much the better.

During the thirty years from 1949 through 1979, NASCAR and the racers it managed transformed localized, grass-roots racing into an entertainment and promotional phenomenon of massive proportions. This emergence and dominance was based directly on material circumstance resulting from mass production. Combining a postwar affinity for automotive speed as cultivated by Hot Rodders on the West coast with an abundance of cars possible through resumption of mass-production, NASCAR developed its own fusion of mass produced technology and entertainment for mass consumption. By borrowing the products of mass production as necessary to compose the specifications for the competition “stock car,” and representing the interest of automakers, NASCAR built an entertainment series.

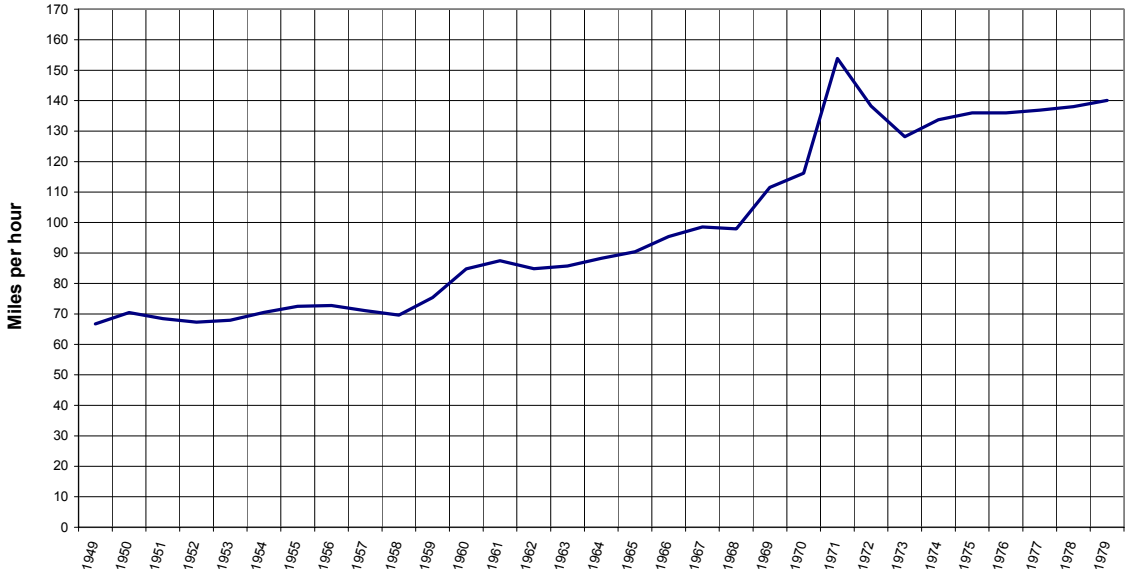
Using the financial proceeds, promotional imperative, and tangible products of American mass production distinguished NASCAR from the other racing series in important ways. Stock car racing emerged from obscurity because Bill France and the sanctioning body he helped build did not focus on promoting the technical development or sophistication of the vehicles used in competition. Other successful series such as the AAA championship car series or events staged by the SCCA were more about celebrating the technical sophistication of the racing automobile. In these series, the exotic nature of the technology that fascinated fans. In contrast, NASCAR racing practiced a different type of technological enthusiasm. Stock car racing focused more on the vehicle as a prop for entertainment and close personal association with the racers. It

depended on the ubiquity and familiarity suggested by the stock format to build association between fans and the sport.

Ironically, a racing series that depended on the virtues of the American automobiles in competition, did very little to encourage technical development. Though NASCAR frequently suggested that it was the ideal testbed for the latest designs from Detroit, the opposite was true in practice. Consistently increasing top speeds, made possible by the creation of NASCAR's "formula stock," fueled this illusion. (See Table 9) Perhaps the illusion of improvement offered by the ever-increasing velocity of NASCAR "stock cars" in competition served to disguise the fact that the American automobile industry had become, as historian James Flink describes, "stagnant in both its product and its production technologies."[500] Rules consistently stifled technical innovations to maintain close competition and keep costs low. Even as NASCAR races were used to promote various models of automobile, NASCAR was extending its control over the technical details of competition to create its own competition machine under the production bodywork.

[500] Flink, p. 378.

Table 9: Yearly Average Pole Speeds, 1949 - 1979



Pole speed offers a measure of the potential top speed for cars during a given year. Some of the increase in speed was due to the change in track surfaces and size. The tremendous spike in pole speed for 1971is due largely to an increase in the number of races on larger tracks.

Data Extracted From: Greg Fielden, *Forty Years of Stock Car Racing* , (Surfside, SC: Galfield Press, 1992), Vol.1-4

Crucially, as NASCAR sought to maintain the stock appearance of the vehicles in competition, underneath the showroom skin development of the chassis and drivetrain, uniformity developed across models and makes. Indeed, the bodywork of late model production cars served as a perfect disguise for technological convergence in the name of competition. The suspension, transmission and axle were replaced with standardized components borrowed from heavier or heavy duty vehicles and a cage of steel tubing replaced the stock stamped steel frame. This internal transformation of the race vehicle served the needs of NASCAR and the stock car racing fraternity by maintaining the illusion of a production vehicle while promoting close competition and ever increasing speeds.

The creation of spectacle was the chief asset of those participants who chose NASCAR racing as a career. Motivated by enthusiasm for motor sport and the

alternative to working class careers that stock car racing offered, the NASCAR fraternity helped build the sport. The hierarchical organization of more traditional fraternities, as mimicked by NASCAR racers, helped organize the sport according to skill and expertise. Yet along with networks of technical expertise and friendship and support, the fraternity adopted and perpetuated many of the biases found among southern whites in the 1950s, and never successfully resisted the prevailing control Bill France and NASCAR asserted over the sport. Despite these shortcomings, the NASCAR racing fraternity did meet the needs of its members and influence the development of the sport. It protected the interest of steady participants from those outside the sport, facilitated organizational hierarchies, was a social and technical resources for racers, and a gave a sense of identity to those willing to endure the trials of racing for a living. Most importantly, the enthusiasm for motor sport that bound fraternity members together at the most fundamental level was a source of continuity during the dramatic changes of NASCAR's first thirty years.

The adoption of the pavement by race tracks on the NASCAR circuit moved stock car racing from the periphery into the mainstream of American motor sport. Pavement gave stock car racing a fresh, more dignified aura and implied association with the largest motor sports event, the Indy 500. Construction of superspeedways increased this association and propelled NASCAR stock car racing to new levels of respectability. The commercial success of emphasis on enhancing the venues and exposure of the sport is born out in growing prominence of race events, and growing annual attendance figures. Between 1949 and 1979, the average number of fans per event increased nearly fourfold, from 12,300 to 47, 500. (See Table 7)

Yet the increased scale of venues and competition was not without casualties. Racing during the 1960s and 1970s moved beyond the means of most small racers. The radical changes in the size and surface of racing venues demanded greater technical

specialization among racing teams. The cars became less like genuine production cars to match the speed and durability required for long events on the big tracks.

NASCAR's control over the technology of competition was nearly a casualty of the participation of huge factory teams. These teams were attracted to the exposure possible with the scale of the superspeedway. When automakers focused their resources on making cars suited to the superspeedways, a crisis of control over the technology of competition prompted NASCAR to assert its authority. As a result, the NASCAR "formula stock" racecar became completely separate from anything made by automakers.

Occasionally, claims regarding the vehicle research and development function of NASCAR racing shaped the public image of NASCAR. From time to time, especially when Bill France wanted to encourage the financial participation of factories, the idea that the racing was somehow directly associated with a testing function was tossed about in the automotive press.[501] Yet the experimental and developmental dimension of NASCAR racing activities were most often cast as justification for stock car racing versus other, more established forms of motor sport and never seriously impinged on a promotional emphasis consistently touting the entertaining qualities of NASCAR racing.

More frequently, the emphasis on the function of NASCAR as a detached arbiter of fair competition simultaneously serving the interest of racer and fan was used as a tool for justifying NASCAR's form of stock car racing regulation. When weaknesses of true production cars threatened continuous action on the track and limited the speed of competition, NASCAR permitted radical changes of stock components in the name of

---

[501] Bill France in 1947, "Minutes from First Meeting," ISC Archives, Daytona Beach, FL, Eugene Jaderquist, "NASCAR Primer," *Motor Trend*, May 1952, p.18, John Painter, "NASCAR Prexy Speaks," *Speed Age*, August, 1954, Bill France and Bloys Britt, The Racing Flag: NASCAR- The Story of Grand National Racing, (New York: Pocket Books, inc, 1965) p.6.

improved safety.[502] Later, when technological advantage born of corporations staking sales on racing victory threatened to diminish the competitive aspects of stock car racing, NASCAR stepped in to guarantee close technical parity.[503] As discussed in Chapter 6, the factory racing efforts of Ford and Chrysler impinged on NASCAR's authority and threatened the close competition vital to selling seats. By developing its own formula for vehicle construction, NASCAR abandoned all but superficial association with production cars in exchange for the capacity to manage competition in the name of entertainment.

With control over the stock car well in hand, NASCAR turned its attention toward cultivating new commercial dimensions of the sport. The completion of the evolution of formula stock by 1975 coincided with transition to dual emphasis as a promotional and entertainment spectacle. NASCAR Grand National racing was renamed the NASCAR Winston Cup and became an advertising outlet for RJ Reynolds tobacco. Coincidentally, increased media exposure brought the spectacle and sponsors to national audiences. As a result of the growing significance of advertising space, in time the whole enterprise of stock car racing hung on the exterior of the racing automobiles. Initially the cars exterior helped separate each basic make of car and served as a point of identification for fans. Later, the bodywork disguised the transition from strictly stock to formula stock as NASCAR and the racers it sanctioned worked to fashion a chassis and powertrain perfectly suited to their needs. Finally, with the level of popularity offered first by the superspeedway and later by television, the exterior of the car became valuable billboard space. As product advertisements covered more and more of the precious terrain, they offered yet another diversion from the technological processes under the skin of the car.

---

[502] Reinforcement of Hudson rear axle, as well as modifications permitted to steering and suspension components in the name of safety.
[503] The1964 domination Chrysler 'Hemi' engine kept Chryslers out of competition in 1965, and later when the Ford SOHC V8 kept Ford out of competition in 1966.

During the 1970s, the NASCAR race car, (except for the constantly morphing exterior) achieved final form. With only slight adjustments in weight, and length, the same configuration would remain in use through the close of the 20th century.

BIBLIOGRAPHY

"A Real Schedule for 1950", *Speed Age*, June 1950

"AAA Contest Board Bulletin," January 7, 1948, AAA Correspondence, Smithsonian Institution Transportation Collection, NMAH, Washington, DC

"AAA Late Model Stock Car Circuit," *Speed Age*, August 1952, p.25

Ackerson, Robert C., *Chevrolet High Performance,* (Iola, WI: Krause Publications, Inc., 1994)

Allsion, Bobby, interview, February 2001, ''Speed and Spirit: NASCAR in America,'' Transportation Collection, Smithsonian Institution, NMAH, Washington, DC, 2002, 1:11:34.

American Automobile Association Contest Board, *AAA Official Competition Rules 1947*, (Washington, DC: American Automobile Association, 1947)

American Automobile Association Contest Board, *AAA Official Competition Rules 1953*, (Washington, DC: American Automobile Association, 1953)

"American Automobile Association Contest Board Official Bulletin, March 9, 1950," AAA Correspondence, Smithsonian Transportation Collection, NMAH, Washington, DC

"American Automobile Association Contest Board Official Bulletin, January 30, 1951," AAA Correspondence, Smithsonian Transportation Collection, NMAH, Washington, DC

"American Automobile Association Contest Board Official Bulletin, August 4, 1955," AAA Correspondence, Smithsonian Institution Transportation Collection, NMAH, Washington, DC

''Ardun Engine Conversions,'' *Ford Field*, February, 1950

AR-86-71-482, Ford Motor Company Motorsports Collection, Papers 1960-1971, Ford Archives, Dearborn Michigan

"Association Regulations," *Speed Age*, February 1952, p.60

"Atlanta Speedway," *Dixie 300 Program*, International Motorsports Hall Of Fame archives, Talladega, AL

Automotive Industries, March 1949, March 1958, March 1965 annual statistical issues.

Ayers, Edward L., Vengance & Justice, Crime and Punishment in the 19th-century American South, (New York: Oxford University Press, 1984)

Balsey, Gene, ''The Hot Rod Culture,'' *American Quarterly*, Vol. 2, No.4, Winter 1950

Barnouw, Erik, *History of Broadcasting in the United States, The Golden Web 1933-1953*, (New York: Oxford University Press)

Barsky, Robert, "The Size and Scope of the Hot Rod Industry," *Automotive Industries,* August 15, 1949

"Bendix Introduces Electronic Fuel Injection," *Automotive Industries*, October 1, 1956, p.49

Berger, Al, "Mr. Stock Car," *Speed Age*, February 1958

Bisher, Furman, "New Horizon, Minus Dust," *The Atlanta Journal*, Sunday, July 31, 1960

Bledsoe, Jerry, *The Worlds Number One, Flat-Out All-Time Great Stock Car Racing Book*, (Asheboro, NC: Down Home Press, 1975)

Bond, John, "What makes Hot Rod Engines Hot?" *Automotive Industries*, February 15, 1949

Borg, Kevin "Doughboys and Grease Monkeys: American Soldiers Learn to Repair the Motor Truck, 1916-1918," *Automotive History Review,* No. 32, Spring 1998

Carroll, William, "Fuel Injection," *Motor Trend,* August 1957

Carson, Iain, Living with the Car, www.sjsu.edu/depts/PoliSci/faculty/haas/MTM201/Living_with_the_Car

Catlin, Russ, "History of the AAA", *Speed Age*, July 1954

Catlin, Russ Catlin, "A Shrine to Speed," *Speed Age*, June 1955

Chapin, Kim, *Fast As White Lightning: The Story Of Stock Car Racing*, (New York: Three Rivers Press) 1998

"Chevrolet's Taking Competition to the Cleaners," *Hot Rod Magazine*, October 1955, p.25

Cisco, "Boosting Compression Ratio," *Hot Rod Magazine*, June 1951

Clawson, Mary Ann, *Constructing Brotherhood: Class, Gender and Fraternalism*, (Princeton: Princeton University Press, 1989)

Cobb, James, *Industrialization and Southern Society*, (Lexington: University of Kentucky Press, 1984), p.79

Constant, Edward W.II, "The Social Locus of Technological Practice: Community, System, or Organization?" in *The Social Construction of Technological Systems*, eds. Wiebe E Bijker, Thomas P. Hughes, and Trevor Pinch, (Cambridge: The MIT Press, 1987)

Correspondence dated September, 11, 1968, Greg Kiatakowski from Aero Warrior web site,

Craft, John, *The Anatomy and Development of the Stock Car*, (Osceola, WI: Motorbooks International, 1993

Craft, John, interview with the author, Daytona Beach November, 2001

Crider, Curtis "Crawfish", *The Road to Daytona*, (Ormond Beach, FL: the author, 1987)

Cushing, Harry, "Detroit Looks at Hot Rods," *Hot Rod Magazine*, December, 1951

Daniel, Pete, *Lost Revolutions: The South in the 1950s,* (University of North Carolina Press, Chapel Hill, 2000)

Daniel, Pete, *Standing at the Crossroads*, Baltimore: MD, The Johns Hopkins University Press, 1986

Davidson's Textile Blue Book, (Ridgewood, NJ: Davidson's Publishing) 1950, p.302-335

Davis, Janice Deborah Scott, interview, "Speed and Spirit: NASCAR in America," Transportation Collection, Smithsonian Institution, NMAH, Washington, DC, 2002

"Death on Wheels," *Ford Field*, September, 1955

"Details of the Lucas Fuel Injection System, *Automotive Industries*, February 1, 1957, p.52-53

"Detroit Censors Speed," *Speed Age*, October 1957, p.15

Dimitry, Steve, Extinct Sports Leagues, *Steve Dimitiry's Extinct Sports Leagues* http://www.geocities,com/coloseum/Arena/6925

Dimmick, Thomas, "Traffic Trends on Rural Roads", *Public Roads: A Journal of Highway Research*, U.S. Department of Commerce, Washington, DC, December 1951

Donohue, Mark, *The Unfair Advantage*, (New York: Dodd, Mead & Company, 1975)

Dowdall, Joe "Drag Racing enthusiasts are handed a real shock." *The Detroit News*, Saturday Oct 24, 1970

Duntov, Zora Arkus, "Thoughts pertaining to youth, hot rodders, and Chevrolet," *Hot Rod Magazine*, January, 1987

Dyke, A.L., *Dykes Automobile and Gasoline Engine Encyclopedia*, (St. Louis: A.L. Dyke, 1918)

Eastman, Joel W., *Styling vs. Safety: The American Automobile Industry and the Development of Automotive Safety, 1900-1966*, (Lanham, MD: University Press of America, 1984)

"Editorial Page," *Rod & Custom*, May 1954

"Editor's Page," *The Autocar*, October 21, 1949

"Elgin Road Race," Henry Ford Museum and Archives, Dearborn, Michigan.

Engle, Lyle Kenyon, *Racing to Win Wood Brothers Style*, (New York: ARCO) 1974

Engle, Lyle Kenyon, *The Book of Ford –Powered Performance Cars*, (New York, Pocket Books, 1967)

"Exploratory Research On Motivations and Characteristics Of Stock Car Racing Fans" (65/F-32-S), Ford Motor Company Archives, Motorsports Collection, Dearborn Michigan.

"Farewell to Midgets?" *Speed Age*, February, 1951, p.29.

Farve, Greg, *Motor Life*, "The Atlanta Story," September, 1961, p. 58.

Fielden, Greg, *Forty Years of Stock Car Racing*, (Surfside Beach, SC: Galfield Press, 1992), Vol.1-4

"Flash: Fuel Injection is Here," *Motor Trend*, February 1956, p.49

Flink, James J., *The Automobile Age*, (Cambridge: MIT Press, 1993)

"Ford Division Program Of Racing and Related Activities For The Model Year 1966, July 13, 1965." Ford Motor Company Motorsports Collection, Papers 1960-1971, Ford Archives, Dearborn Michigan.

"Ford Scores Sales Success in South and West as Racing Image Grows," *Wards Automotive Reports*, Slide No. 62F, Ford Motor Company Archives, Motorsports Collection, Dearborn Michigan.

France, Bill and Bloys Britt, *The Racing Flag: NASCAR – The Story of Grand National Racing*, (New York: Pocket Books, 1965)

Francisco, Don, "4 Barrel Speed Secrets: Single Overhead Cam Miller," *Hot Rod Magazine*, December 1950

Gartman, David, *Auto Opium : a Social History of the American Automobile*, (New York: Routledge Press, 1994)

Geschelin, Joseph, "Super-powered Engines for Stock Model Cars," *Automotive Industries*, November 15, 1956

Gilham, Larry, "Strictly Stock," *Motorsport Magazine*, February 1952

Girdler, Alan, *Stock Car Racers*, (Osceola, WI: MBI) 1988

Golenbock, Peter, *American Zoom*, (New York: Macmillan, 1993)

Golenbock, Peter and Greg Fielden, *The Stock Car Racing Encyclopedia*, (New York: Macmillan, 1997)

Grantham, Dewey, *The South in Modern America: A Region at Odds*, (New York: Harper Collins, 1994)

Gray, Henley, phone interview conducted by author, February 1999

Gray, Owen R., "Racing is Rugged in Texas," *Hot Rod Magazine*, January 1951

Hagstrom, Larry The NASCAR Way, (New York: John Wiley and Sons, 1998)

Harvey, Frank L., "Thunderbolts With Fenders," *Saturday Evening Post*, August 7, 1947

Herveieux, John, "Another John Males?" *Rod and Custom*, May 1954

Hilborn,Stu, "Fuel Injection Facts," *Hot Rod Magazine*, August, 1951

"History,"Motor Racing Network, web site: http://dbserver.iscmotorsports.com/MRNRadio/index.cfm

"Hot Rodders Will Compete For $1000 Scholarship and Gold Trophy," *Ford Field*, August 1952

"Hot Rodding Goes National," *Hot Rod Magazine*, June 1951

"Hot Rods," *Life*, November 5, 1947

Hounshell, David, *From the American System to Mass production, 1800-1932,* Baltimore, MD: The Johns Hopkins University Press, 1984)

Howell, Mark D., *From Moonshine to Madison Avenue: A Cultural History of the Winston Cup Series*, (Bowling Green, OH: Bowling Green State University Popular Press) 1997

Hughes, Thomas P., *American Genesis: A Century of Invention and Technolgical Enthusiasm,* (New York: Penguin Books, 1989)

Hunt, Sandra, "Ladies First", *1971 Charlotte World 600 Program*, International Motorsports Hall of Fame and Archives, Talladega, Alabama.

Huntington, Roger, "Bombs on the Boards," *Speed Age*, September, 1952

Huntington, Roger, "Detroit Corner," *Speed Age*, May 1952

Huntington, Roger, "Detroit Corner," *Speed Age*, December 1952

Huntington, Roger, "How Did We Get This Way?" *Speed Age*, June 1952

Huntington, Roger, "The Truth About Stock Car Records," *Speed Age*, February, 1950

Inglis, Barclay, "The Facts about the LeMans Incident," *Speed Age*, November 1955, p.74-76

Ingram, Jack, interview, April 2001, Speed and Spirit: NASCAR in America, Smithsonian Institution Transportation Collection, National Museum of American History, Washington, DC, 11:04:40

Jaderquist, Eugene, "Competition and the AAA," *Motor Trend*, July 1952

Jaderquist, Eugene, "NASCAR Primer," *Motor Trend*, May 1952

Jaderquist, Eugene, "Those Cool and Crazy Customs," *True's Automotive Yearbook*, 1954

Jarrett, Ned, interview April 2001, "Speed and Spirit: NASCAR in America," Smithsonian Institution, NMAH, Washington, D.C., 2002, 21:05:51

Johanson, David M., "Stock Car Racing," *Encyclopedia of Southern Culture*, (Chapel Hill: University of North Carolina Press, 1989), p.1241

Johnson's Indy 500 http://www.geocities.com/johnsonindy500/reference/html 5/10/2004

Johnson, Amos, phone interview conducted by author, March 1997

Johnson, Junior, interview, February 2001, "Speed and Spirit: NASCAR in America," Smithsonian Institution, NMAH, Washington, DC, 2002

Kay, James, "Overhead Valves . . . For Higher Horsepower," *Ford Field*, August 1950, p.18.

Keats, John, *The Insolent Chariots,* (New York: Fawcett Books) 1959

Kenealy, James L. *Model T Ford Authentic Accessories*, Seattle: By the author, 4015 N.E. 178th, Seattle, WA. 98155, 1976), Vol. 1-3

Kidd, Al, "Trends In Auto Racing," *Motor Trend*, July 1956

Kline, Ronald and Trevor Pinch, "The Social Construction of the Automobile," *Technology and Culture*, Vol. 37, No. 4, University of Chicago Press

Kuns, Ray, *Automobile Racing*, 6th edition, 1947

Lamm, Michael and Dave Holls, *A Century of Automotive Style: 100 years of American Car Design*, (Stockton: Lamm-Morada Publishing Company, Inc, 1996)

Lawrence, Philip, "Mercury and Lincoln introduce "Customized" Coupes," *Ford Field,* August 1950

Laye, Leonard, "Talladega's Troubled Baptism," *Motor Trend*, November, 1969

LeDuc, Harry, "Detroit is Stock Car Natural, *Speed Age*, September 1952

Leeg, Alan, "Model T Fan," *Hot Rod Magazine*, October, 1951
Don Francisco, "V8's From Ford to Firepower," *Hot Rod Magazine*, July 1951

Levine, Leo*, Ford: The Dust and Glory*, (New York: Macmillan, 1968)

Levi-Strauss, Claude, *The Savage Mind*, (Chicago: University of Chicago Press, 1966), p.16-36

Mandel, Leon, *American Cars*, (New York: Stewart, Tabori & Chang, 1982)

Mansell, Don and Joseph Hall, "Hot Rod Terms in the Pasadena Area," *American Speech,* XXIX (May, 1954)

Marcell, R.P. and Romberg, G.F., "The Aerodynamic Development of the Charger Daytona for Stock Car Competition," SAE paper number 700036 presented at the Automotive Engineering Congress, January 1970

Miller, Akton, "Hot Rods – I love 'em," *Hot Rod Magazine*, March 1951

"Minutes of the First Meeting," ISC Archives, Daytona Beach, Florida

Meikle, Jeffry L. Meikle, "Streamlining, 1930-1955," in *Industrial Design: Reflection of a Century,* ed. Jocelyn de Noblet, ed, (Paris : Flammarion/APCI, 1993)

"Modified Roadsters," *National Speed Sport News,* December 15, 1933

"More About the T's", *Rod and Custom*, March, 1954

Mosteller, Jimmy, interview, conducted by the author, Peach Bowl Reunion, January 30, 2000

Myers, Bob, "Bruton Smith"*, Stock Car Racing Magazine*, April 1976, p.74

Meyer, Stephen, *The Five Dollar Day*, (Albany: State University of New York Press, 1981)

Moorhouse, H.F., Driving Ambitions, (New York: Manchester University Press, 1991)

"Motorama," *Hot Rod Magazine*, January, 1953

"NASCAR," *Speed Age*, April, 1952, p.74

NASCAR, *Stock Car Racing Rule Book*, 1948 through 1979 (Daytona Beach: NASCAR, 1948 – 1979) ISC Archives, Daytona Beach, FL

"NASCAR Grand National Racing for 1954," *Speed Age*, August 1954, p.52

"NASCAR News Bulletin - The Story of NASCAR 1948-1970," ISC archives, Daytona Beach, FL.

NASCAR Newsletter, November 1, 1952, p.1

NASCAR Newsletter, November 6, 1953, p.4

NACAR Newsletter, November 1, 1953, p.3

NASCAR Newsletter, January 12, 1957, p.1

NASCAR Newsletter, March 22, 1957, p.4

NASCAR Newsletter, June 21, 1957, p.3

NASCAR Newsletter, July 15 1969, p.4

Neuberger, Richard, Speech on the Senate floor from July 12, 1955 reprinted in, Russ Catlin, "How To Save Racing In America," *Speed Age*, November, 1955, p.13

"News and Forecast," *Speed Age*, April 1951, p.47

Noffsinger, Ken, "Superbird," *Aerowarriors.Com*

Noffsinger, Ken, historian for the National Chrysler 'B' Body Association, phone interview with the author, January, 1999

1957 Chevrolet Stock Car Competition Guide, (Detroit: Chevrolet Division, General Motors Corporation, 1957)

1962 Pontiac Special Equipment Catalog and Reference Guide, (Detroit: Pontiac Division, General Motors Corporation, 1962)

Nye, David Nye, *American Technological Sublime*, (Cambridge: MIT Press, 1996)

"Oakland's Speed Palace," *Speed Age*, August, 1948, p.18

"$150,000 Worth of Hot Rods," *Automotive Industries*, April 15, 1949

O'Reilly, Don, "When Is A Stocker Not A Stocker," *Motor Trend*, May 1957

O'Reilly, Don, "NASCAR's History," *Stock Car Racing*, October, 1973

Outcalt, Al, "Why Detroit Censors Speed," *Speed Age,* October 1957

Packard, Sammy, interview, February 2001, "Speed and Spirit: NASCAR in America," Transportation Collection, Smithsonian Institution, NMAH, Washington, D.C., 2002

Painter, John, "NASCAR Prexy Talks," Speed Age, August 1954, p.55,

Pappas, Steve, "Speed Week Time Again," *Speed Age*, February, 1952

Parks, Wally, "Hot Rod Attends National SAE Meeting in Tulsa," *Hot Rod Magazine*, January, 1951

Patton, Randall L., *Carpet Capital: The Rise of the New South Industry*, (Athens, GA: University of Georgia Press, 1999)

Pendergast, Bob, ‘‘Chop Your Top,’’ *Rod and Custom*, October, 1951

Petty, Elizabeth, interview, ‘‘Speed and Spirit: NASCAR in America,’’ National Museum of American History Transportation Collection, Washington, DC.

Pierce, Daniel S., ‘‘The Most Southern Sport on Earth: NASCAR and the Unions,’’ *Southern Cultures*, Vol.7, No.2

Post, Robert C., *High Performance: The Culture and Technology of Drag Racing*, (Balitmore, MD: Johns Hopkins Press, 1994)

Powell, Walter W. and Laura Smith-Doerr, ‘‘Networks and Economic Life,’’ in *The Handbook of Economic Sociology*, eds. N. Smelser and R Soudeberg, (Princeton, NJ: Princeton University Press, 1994)

Rae, John B. Rae, *The American Automobile: A Brief History*, (Chicago: University of Chicago Press, 1965)

Reed, John Shelton, *The Enduring South: Subcultural Persistence in Mass Society,* (University of North Carolina Press, 1974)

‘‘Safety Belts’’ *Speed Age*, March,1950, p.46

“Sanctioning Body of America’s Most Important Stock Car Races,” *Speed Age*, February 1951, p.51

Saxenian, AnnaLee Saxenian, *Regional Networks: Industrial Adaptation in Silicon Valley and Route 128,* (Cambridge, MA: Harvard University Press)

Scharff, Virginia, *Taking the Wheel: Women and the Coming of the Motor Age*, New York, Free Press, 1991

Scherenberg, H., ‘‘Why An Unblown Engine With Fuel Injection Was Selected For Mercedes Benz Racing Cars,’’ *Automotive Industries*, April 15, 1957

Scranton, Philip, Endless Novelty: Specialty Production and American Industrialization, 1865-1925, (Princeton, NJ: Princeton University Press, 1997)

Simon, Bryant, *A Fabric of Defeat: The Politics of South Carolina Mill Hands, 1910-1948*, (Chapel Hill: University of North Carolina Press, 1998)

Smith, Louise, interview, ‘‘Speed and Spirit: NASCAR in America,’’ Transportation Collection, Smithsonian Institution, NMAH, Washington, DC, 2002

Stewart, Joe, “America’s Newest and Dixieland’s Pride,” *Speed Age*, September 1950

Stock Car Magazine, Circle Publishing Company, Alexandria, VA, 1966

‘‘Stock Car Races,’’ *Motor*, October 1909

‘‘Stroking the Ford V8,’’ *Rod and Custom*, May 1954

Sucher, Harry V., *Iron Redskin*, Haynes, 1984

“Summary of 1955 activity,” AAA Correspondence, Smithsonian Institution Transportation Collection NMAH, Washington, DC

Swaim, Bill, ‘‘Tis a Fact Suh,’’ *Speed Age,* August 1950

Taroll, Don, ‘‘Western Advantage,’’ *Hot Rod Magazine*, January, 1951

‘‘The Beginnings of the Western Aftermarket: A Motor West Special Report,’’ *Motor West*, 1976

‘‘The Fabulous Hudson Hornet,’’ *Motorsport*, May, 1952, p.36

‘‘The Gravel Pits,’’ *Speed Age*, September 1950, p.50

‘‘The Hot Rod Hop,’’ *Hot Rod Magazine*, July 1955

‘‘The Hot Rod Problem,’’ *Life*, November 7, 1949

‘‘The Marvel-Schebler Fuel Injection System,’’ Automotive Industries, January 15, 1957, p.58

‘‘The New Ford Fairlane’’ *Ford Field,* October 1954

“The Scientific Speedway,” *1959 Daytona 500 Program*, ISC/NASCAR archives, Daytona Beach, Florida.

‘‘The Shuttle Piston Fuel Injection System,’’ *Automotive Industries*, October 1, 1956, p.52

‘‘The Wood Brothers,’’ Ford News Release,1970, ISC Archives.

Thomas, Robert J., *What Machines Can’t Do: Politics and Technology in the Industrial Enterprise*, (Berkeley, CA: University of California Press, 1994)

Thomas, Wayne, “Is Chevrolet Back In Racing: Signs of the Times Say Yes, But Official Policy is Still No,” *Car Life*, October, 1965

Thompson, Ray, “Auto Racing Publicity,” *Speed Age*, April 1950

‘‘Those were the Days,’’ *Rod and Custom*, June, 1954

‘‘Touring the Hot Rod Shops: Eddie Meyer Engineering,’’ *Hot Rod Magazine*, June, 1951

Truelove, Russ, interview with the author, Jonesboro Georgia ‘‘Peach Bowl’’ reunion, February, 2000.

Turner, Curtis, “A Letter to the Fans,” 1960 World 600 program, International Motorsports Hall Of Fame archives, Talladega, AL

Tuthill, Bill, ‘‘A Racing Secretary Analyzes Racing’’, *Speed Age*, March 1950

‘‘Unique Fuel Injection System Does Not Use Timing Device,’’ *Automotive Industries*, May 1, 1949, p.45

United States Auto Club, *Official Competition Rules*, 1958

U.S. Department of Transportation, *Highway Statistics Summary to 1975*, (Washington DC: U.S. Department of Transportation, 1976), p.44

U.S. Department of Transportation, *Summary of Highway Statistics to 1965*, (Washington, DC: U.S. Department of Transportation, 1967)

Vandiver, Frank E., “The Southerner As Extremist,” *The Idea of the South: Pursuit of a Central Theme*, ed. Frank Vandiver, (Chicago: University of Chicago Press, 1964)

VanValkenburgh, Paul, *Chevrolet Racing? Fifteen Years of Raucous Silence*, (Warrendale, PA: Society of Automotive Engineers, 2000)

“What Value Modified Stock Racing?” *Speed Age*, March 1951, p.50

Wheeler, Humpy, interview, ‘‘Speed and Spirit: NASCAR in America,’’ Smithsonian Institution, NMAH, Washington, DC, 2002

White, Gordon, *Offenhauser*, (Osceola: MBI, 2001)

White, Lawrence J., *The Automobile Industry Since 1945*, (Cambridge: Harvard University Press, 1971)

Willis, Paul, ‘‘Shop Floor Culture and Wage Form,’’ *Working Class Culture: Studies in History and Theory,* Eds. J. Clark and R. Johnson, (New York, St. Martins Press, 1979)

Winkler. A. H. and R.W. Sutton, ‘‘The Bendix Electrojector Provides Timed Intake Port Fuel Injection,’’ *Automotive Industries*, February 15, 1957

Wolf, Tom, “The Last American Hero,” from *The Kandy-Kolored Tangerine-Flake Streamline Baby,* Farrar, Strauss & Giroux, 1965, p. 106

Wood, Leonard, phone interview with the author, Winter 1998

Wright, Bob, Chrysler engineer, interviewed by Ken Noffsinger, June 2001, Winged Warrior Web Site:

Wyatt, Brown, Bertram, *Southern Honor*, (New York: Oxford University Press, 1986)

Yunick, Smokey, *Best Damn Garage in Town: The World According to Smokey,* (Daytona Beach: Carbon Press, 2001)

Yunick, Smokey, interview, February 2001, "Speed and Spirit: NASCAR in America," Transportation Collection, Smithsonian Institution, NMAH, Washington, DC, 2002

Zelenko, Felix, "Hot Rodders Then and Now," *Hot Rod Magazine*, July, 1955, *Rod and Custom*, August, 1954